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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET 275

Sentinel Models 1U-901, 1U-911, 1U-914, 1U-921, 1U-924 and 1U-991 were covered in Photofact Folder 14 - Set 275.

Models 2911, 2914, 21011B and 21017B are electrically identical to the above named models, except for the addition of a remote control unit. A schematic of the remote control unit is given in this bulletin.

NOTE: The remote control unit must be connected to the receiver whether the receiver is operated by remote control or by the controls on the receiver. With the remote control unit removed the brightness control circuit is open and no B+ is applied to the plate of the tuner oscillator (pin 1 of V2).

To service the remote control unit the following service instructions are given.

INCORRECT DRIVE MOTOR OPERATION

Check the gap and position of the homing switch. This switch is located on the tuner. The gap should be approximately .015 inch and the switch should be set in the center of the detent valley.

Check the tension of the ladder chain drive. To obtain proper tension loosen the tuner drive motor from the chassis mounting board and move the motor away from the tuner until only a small amount of slack remains in the ladder chain. Then retighten the tuner drive motor .

TO CLEAN HOMING SWITCH AND RELAY CONTACTS

The homing switch and relay contacts may be cleaned with carbon tetrachloride or, if the contacts are carbonized, use a piece of crocus cloth or fine 000 sand paper and polish the surfaces of the contacts.

LUBRICATION

Under normal operating conditions the remote drive motor will not require any lubrication. However, if the motor bearings become noisy a few drops of fine oil should be added to each motor bearing.

TO SERVICE TV WITHOUT REMOTE CONTROL UNIT

Jumper pin 9 to pin 11 of the remote socket to operate the brightness control circuit.

Jumper pin 7 to pin 8 of the remote socket to apply B+ to the plate of the tuner oscillator tube (pin 1 of V2).

SENTINEL MODELS 2911, 2914, 21011B, 21017B

PRODUCTION CHANGES
BULLETIN 128

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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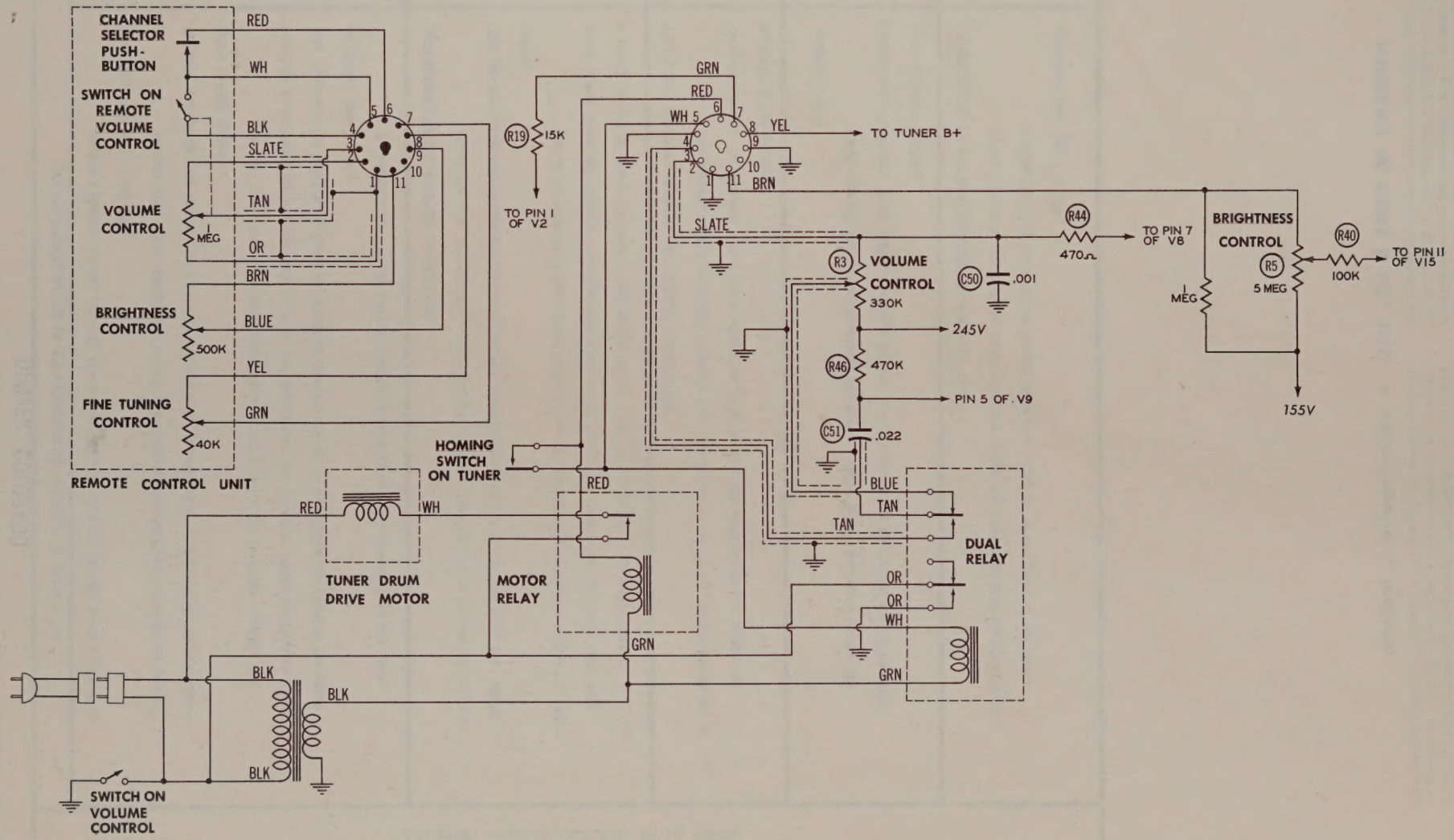
CHANNEL SELECTOR PUSH-BUTTON
SWITCH ON REMOTE VOLUME CONTROL
VOLUME CONTROL
1 MEG
BRIGHTNESS CONTROL
500K
FINE TUNING CONTROL
40K
REMOTE CONTROL UNIT
RED
WH
BLK
SLATE
TAN
OR
BRN
BLUE
YEL
GRN
R19 15K
TO PIN 1 OF V2
TO TUNER B+
R3 VOLUME CONTROL 330K
C50 .001
R44 470Ω
TO PIN 7 OF V8
BRIGHTNESS CONTROL
R5 5 MEG
R40 100K
TO PIN 11 OF V15
1 MEG
245V
R46 470K
PIN 5 OF V9
C51 .022
155V
HOMING SWITCH ON TUNER
TUNER DRUM DRIVE MOTOR
MOTOR RELAY
DUAL RELAY
SWITCH ON VOLUME CONTROL

AIRCASTLE
MODELS 782.5C1, 782.5R1

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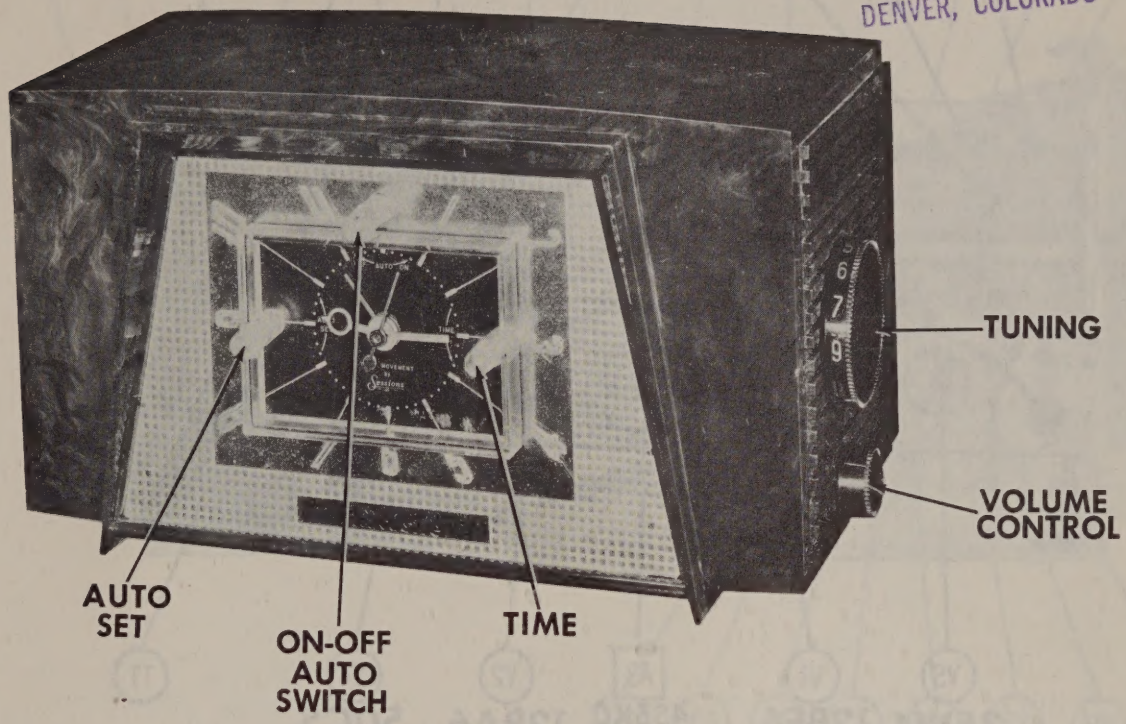
AIRCASTLE
MODELS 782.5C1, 782.5R1



AIRCASTLE
MODELS 782.5C1, 782.5R1

TRADE NAME	Aircastle Models 782.5C1, 782.5R1
SUPPLIER	Spiegel, Inc., 1061 W. 35th. St., Chicago 9, Ill.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	538KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	AIRCASTLE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	70	150	150-107			TCD49	TDL-8030-150	FMT-312	Red
B	30	150							Blue
C2	.05	400		DF-503		PT415	IMP4-S5	330415	
C3	100			D6-101	GP1K-101	UC-531		K-1310	
C4	.0022	400		D6-222	GP2-333-222	PT6222	IMP6-D22	3306222	
C5	300			D6-301	GP2K-301	UC-533		K-1330	
C6	.01	400		D6-103	GP3-333-103	PT401	IMP4-S1	330411	
C7	10000			DD-103	811-01	DC-511	IMP6-S1	330611	
C8	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C9	.1	400		DF-104		PT401	IMP4-P1	330401	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	120-108	Q13-133	A47-500K-Z	AB-60	U-48	Volume - Note 1
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A

Note 1. Model 782.5R1 uses part #120-101 in this application while some versions of model 782.5C1 use alternate control part #120-105.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRCASTLE PART No.	IRC PART No.	
R2	22KΩ	½	180-102	BTS-22K	
R3	270Ω	½	180-131	BTS-270	
R4	2.2Meg	½	180-107	BTS-2.2Meg	
R5	10Meg	½	180-108	BTS-10Meg	
R6	300KΩ	½	180-105	BTS-270K	

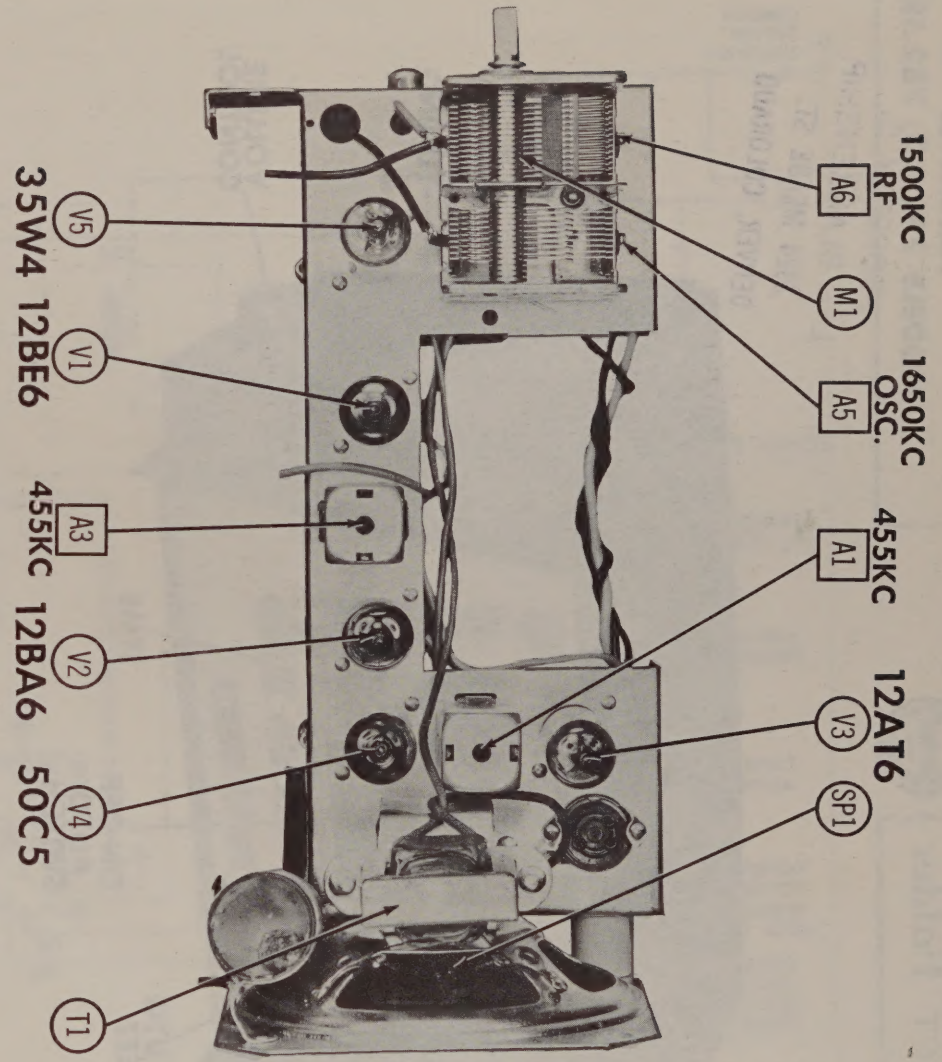
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRCASTLE PART No.	IRC PART No.	
R7	470KΩ	½	180-110	BTS-470K	
R8	180Ω	½		BTS-180	Note 1
R9	2200Ω	2		BTB-2200	
R10	22Ω	½	180-113		Note 2

Note 1. Some versions use a 150Ω resistor in this application.
Note 2. Not used in some versions.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AIRCASTLE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.4KΩ	3.5Ω	Part of Spkr.	Z1101	A-3025	A-3332	26S58 ①	S-12X	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRCASTLE PART No.	QUAM PART No.	
SP1	4"	PM	3.5Ω	175-105	4A1	

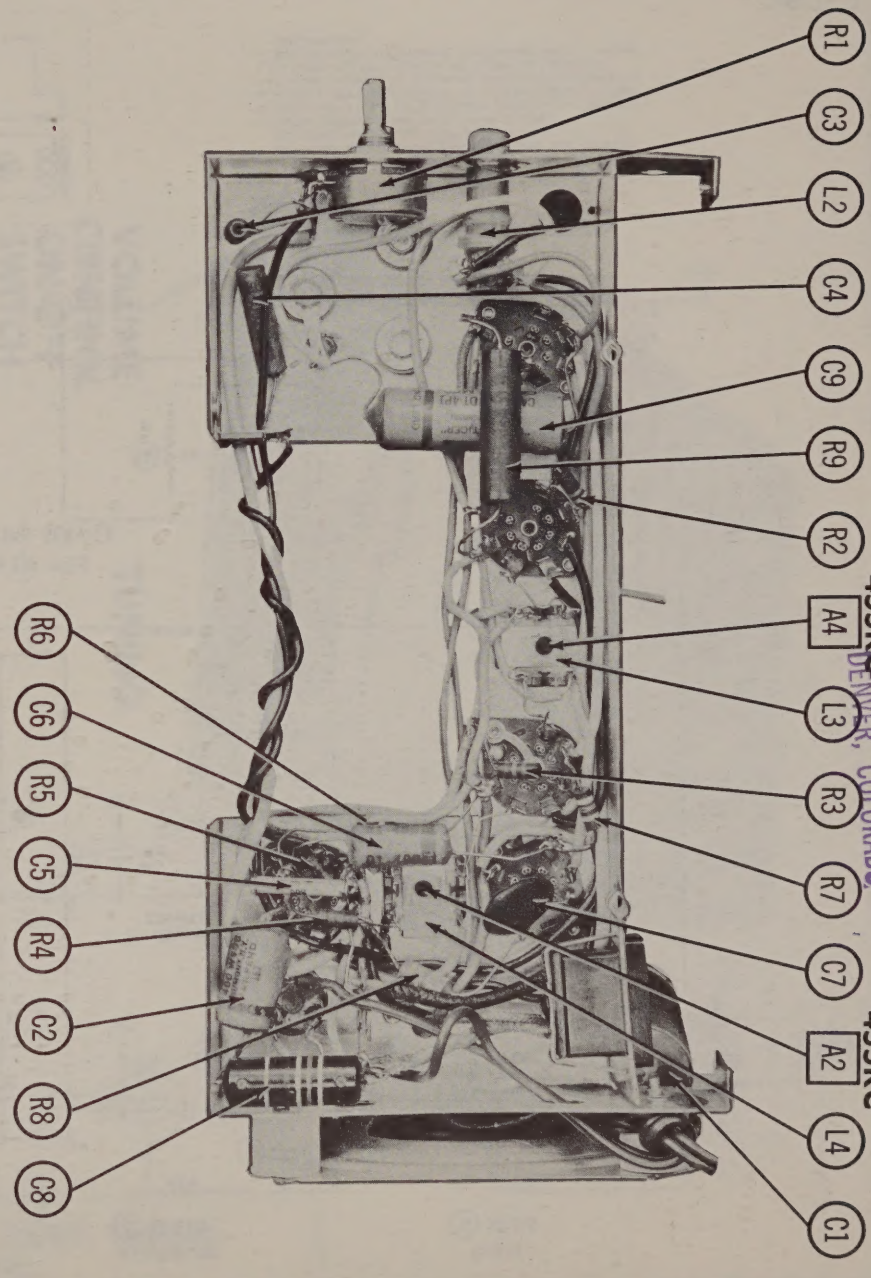
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	2.8Ω		134-101				Includes cabinet back
L2	Osc.Coil	.5Ω	5.5Ω	136-106	14-1073		69-OSC	
L3	Input IF	17Ω	17Ω	130-102	16-6758	BC-352	12-C1	
L4	Output IF	17Ω	17Ω	130-102	16-6758	BC-353	12-C2	

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M1	Tuning Cap.	160-104	2 Gang (23-465MMF, 32-195MMF)
M2	Clock	207-101	Model 782.5C1 only
	Cabinet	210-104	Model 782.5C1
	Cabinet	210-103	Model 782.5R1
	Knob	220-104-E	Volume - Model 782.5C1
	Knob	220-110	Volume - Model 782.5R1
	Knob	220-103-E	Tuning - Model y782.5C1
	Knob	220-109	Tuning - Model 782.5R1
	Knob	207-102	Clock - Set of 3 - Model 782.5C1
	Face	206-102-G	Clock - Gold Foil - Model 782.5C1
	Face	206-102-R	Clock - Red Foil - Model 782.5C1
	Insert	205-102	Clock - Clear - Model 782.5C1

CHASSIS—BOTTOM VIEW



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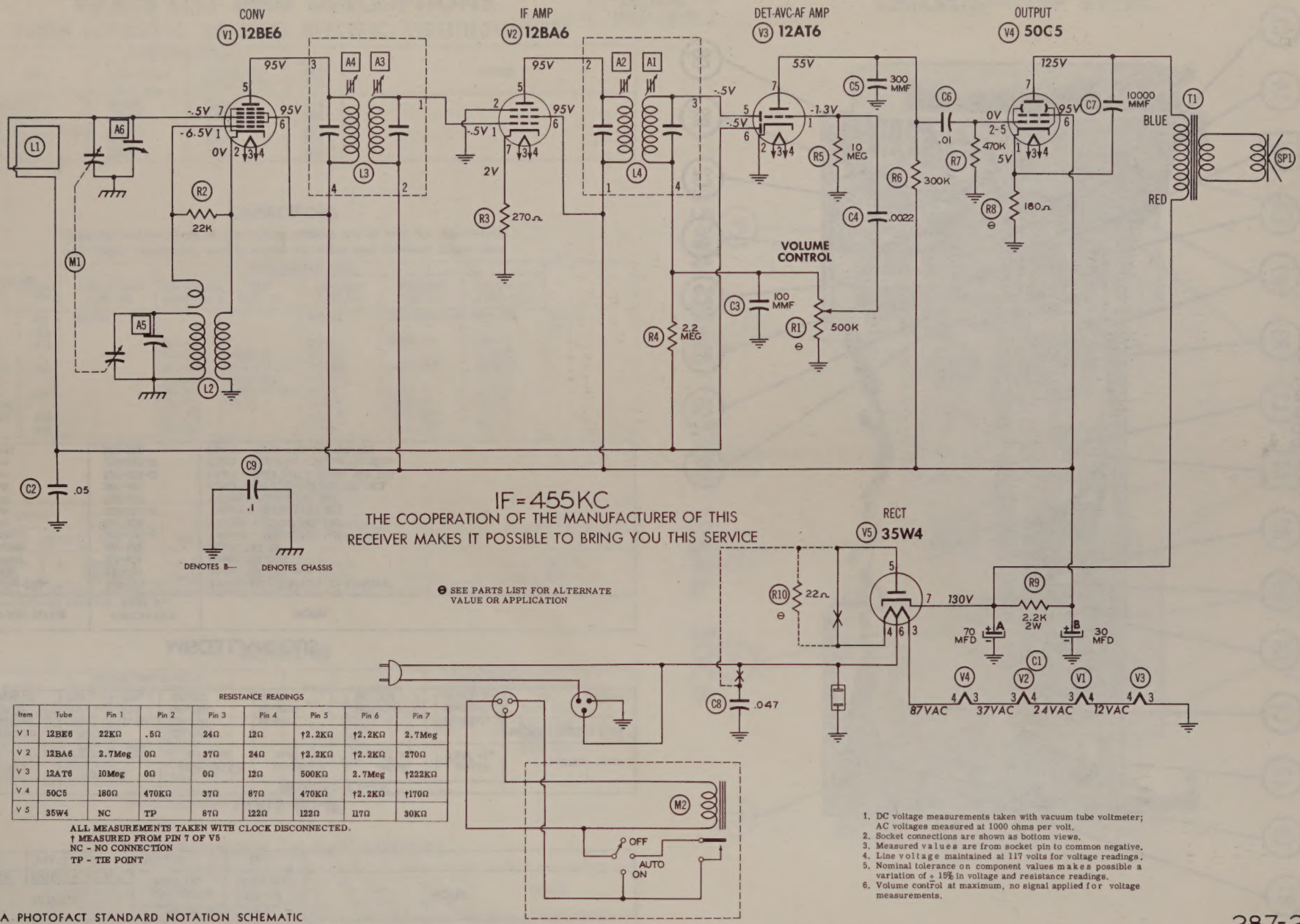

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.5Ω	24Ω	12Ω	†2.2KΩ	†2.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	37Ω	24Ω	†2.2KΩ	†2.2KΩ	270Ω
V 3	12AT6	10Meg	0Ω	0Ω	12Ω	500KΩ	2.7Meg	†222KΩ
V 4	50C5	180Ω	470KΩ	37Ω	87Ω	470KΩ	†2.2KΩ	†170Ω
V 5	35W4	NC	TP	87Ω	122Ω	122Ω	117Ω	30KΩ

ALL MEASUREMENTS TAKEN WITH CLOCK DISCONNECTED.
† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALLSTATE
MODEL 6330 (Ch. 528.63300)

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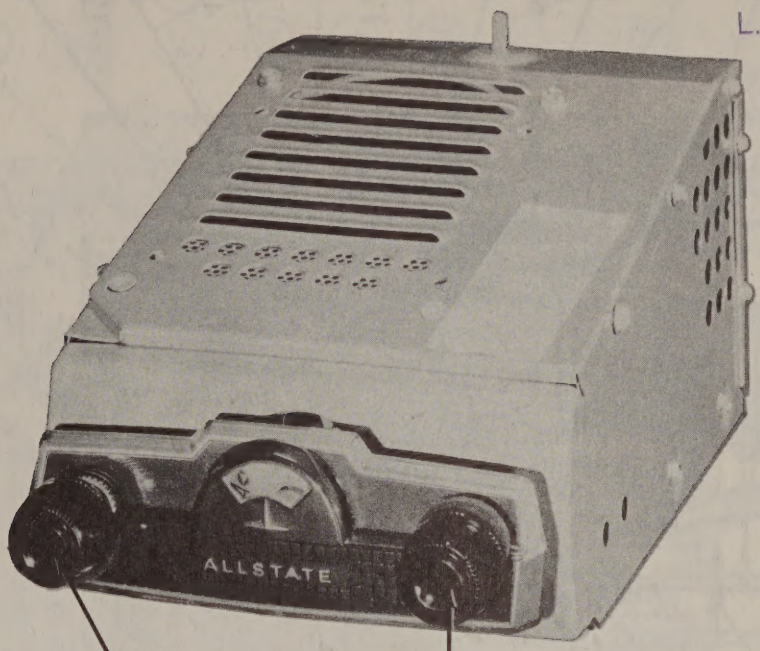
ALLSTATE
MODEL 6330 (Ch. 528.63300)



ALLSTATE
MODEL 6330 (Ch. 528.63300)

TRADE NAME	Allstate Model 6330 (Ch. 528.63300)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Battery Operated Universal AM Superheterodyne Automobile Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 12AQ5 Output, 12X4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 2.6 Amp. @ 12.6Volts DC
TUNING RANGE—BROADCAST	535KC-1610KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	High side to antenna terminal lug. Low side to chassis.	1610KC	"	"	A5	"
3.	"	"	535KC	Tuning gang fully closed	"	A6	"
4.	"	"	1400KC	Tune for max. signal	"	A7	"
5.	"	"	600KC	"	"	A8	Adjust for maximum output. Repeat steps 3, 4 and 5, if necessary for proper tracking at 600KC and 1400KC.

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PARTS LIST AND DESCRIPTIONS

ALLSTATE
MODEL 6330 (Ch. 528.63300)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	12AQ5	12AQ5	7BZ	
V5	Rectifier	12X4	12X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ALLSTATE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	■10	250	T18-303			FP345.2	TM-3025	T-450	
B	▲10	250							
C	10	25							
C2	10000		T15-211	DD-103	811-01	DC-511		C-06110	
C3	.05	200	T16-197	DF-503		PT415	IMP2-S5	330215	
C4	50		T15-204	TCN-50	N750K-500	NT-5447			
C5	.05	200	T16-197	DF-503		PT415	IMP2-S5	330215	
C6A	220								
B	5000								
C	5000		♦T17-111	♦PC-151	♦1408-02				
D	250								
E									
C7	5000		T16-177	DD-502	811-005	DC-525	IMP4-D5	C-1250	
C8	10000		T15-211	DD-103	811-01	DC-511			Note 1
C9	.01	1600	T16-268	DI6-103		PT1611	CT16-S1		
C10	.5	100	T16-215			RF480	CT2-P5	330205	
C11	5000		T16-177	DD-502	811-005	DC-525	IMP4-D5	C-1250	
C12	.5		T16-215			RF480	CT2-P5	330205	
C13	10000		T15-211	DD-103	811-01	DC-511	IMP2-S1		

♦ Items C6A, C6B, C6C, C6D, C6E, R7A, R7B and R7C are combined in one unit.
When replacing items separately, items C6D and C6E should total 250MMF.
Note 1. C8 added in late production model.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ALLSTATE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500KΩ	½	T24-220					Volume & Switch

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	100Ω	½	S601010M	BTS-100	
R3	22KΩ	½	S602230M	BTS-22K	
R4	150Ω	½	S601510M	BTS-150	Note 1
R5	15KΩ	1	S601531M	BTA-15K	
R6	2.2Meg	½	S602250M	BTS-2.2Meg	
R7A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦T17-111	BTS-470K	
C	470KΩ	½		BTS-470K	

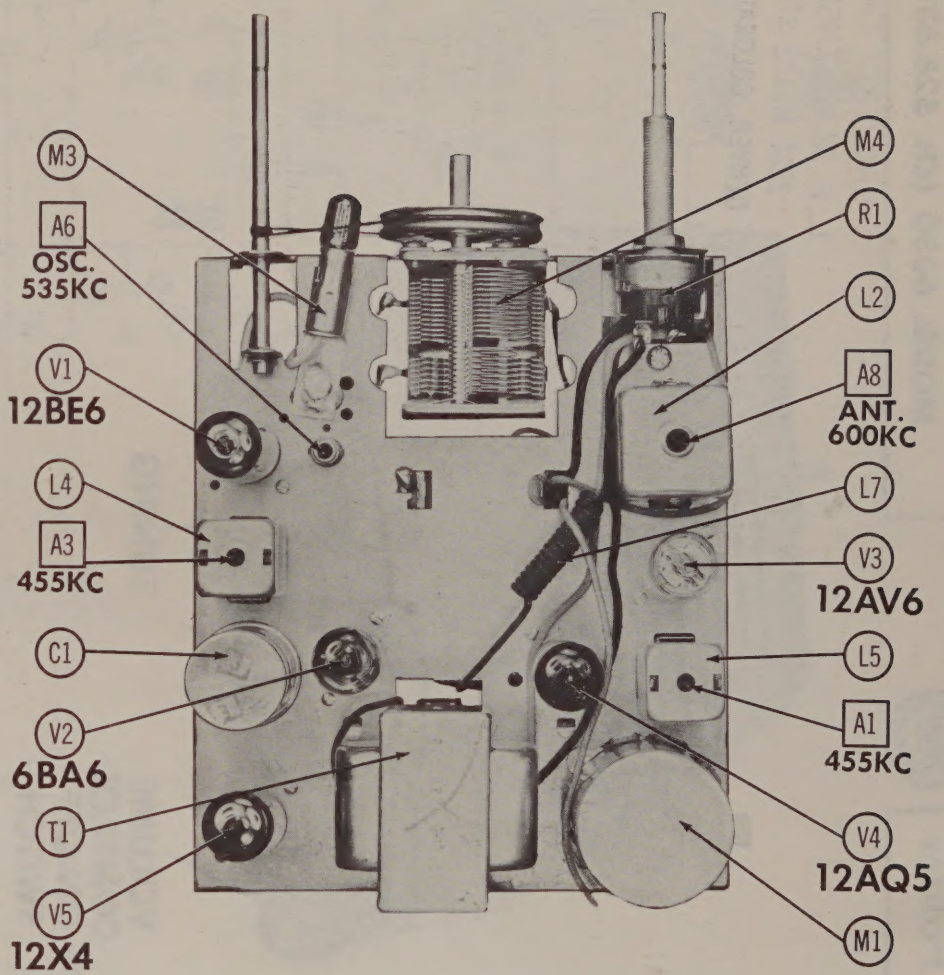
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ALLSTATE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R8	180Ω	½	S601810K	BTS-180	
R9	3300Ω	1	S603321M	BTA-3300	
R10	10KΩ	½	S601030M	BTS-10K	
R11	150Ω	½	S601510M	BTS-150	Note 2
R12	150Ω	½	S601510M	BTS-150	Note 2

♦ Items R7A, R7B, R7C, C6A, C6B, C6C, C6D and C6E are combined in one unit.
Note 1. Some versions use a 120Ω resistor in this application.
Note 2. Some versions use a 330Ω resistor in this application.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ALLSTATE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12VCT @1.4A	40VCT .035ADC			80-327					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ALLSTATE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5.2KΩ	3.3Ω	80-315		A-3026				

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA ALLSTATE PART No.	QUAM PART No.	NOTES
SP1	4 x 6"	PM	3.3Ω	79-431	46A1	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ALLSTATE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Loading Coil	1.1Ω		T10-668	19-1005		4612	10 Microhenries
L2	Ant. Coil	4Ω		T10-681				Tapped ⓐ 2.6Ω
L3	Osc. Coil	9Ω		T10-667		BC-387		Tapped ⓐ .8Ω
L4	Input IF	20Ω	20Ω	T10-508	16-6758	BC-352	12-C1	
L5	Output IF	17Ω	17Ω	T10-509	16-6758	BC-353	12-C2	
L6	Fil. Choke	0Ω		T33-229				
L7	Fil. Choke	0Ω		T33-241	19-4215		5221	2 Microhenries
L8	Vib. Hash Choke	0Ω		T33-239				11.4 Microhenries

VIBRATOR

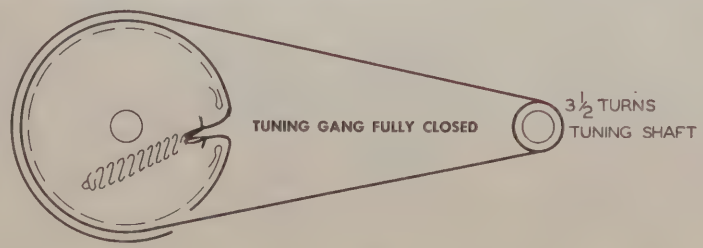
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA ALLSTATE PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M1	Interrupter	12V	115∿	A-34-107	6301	G859	6301	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ALLSTATE PART No. FUSE	ALLSTATE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	7½A 32V	T43-16	T84-233	31107.5 (3AG-7½A)	155020	AGW 7½	HRH

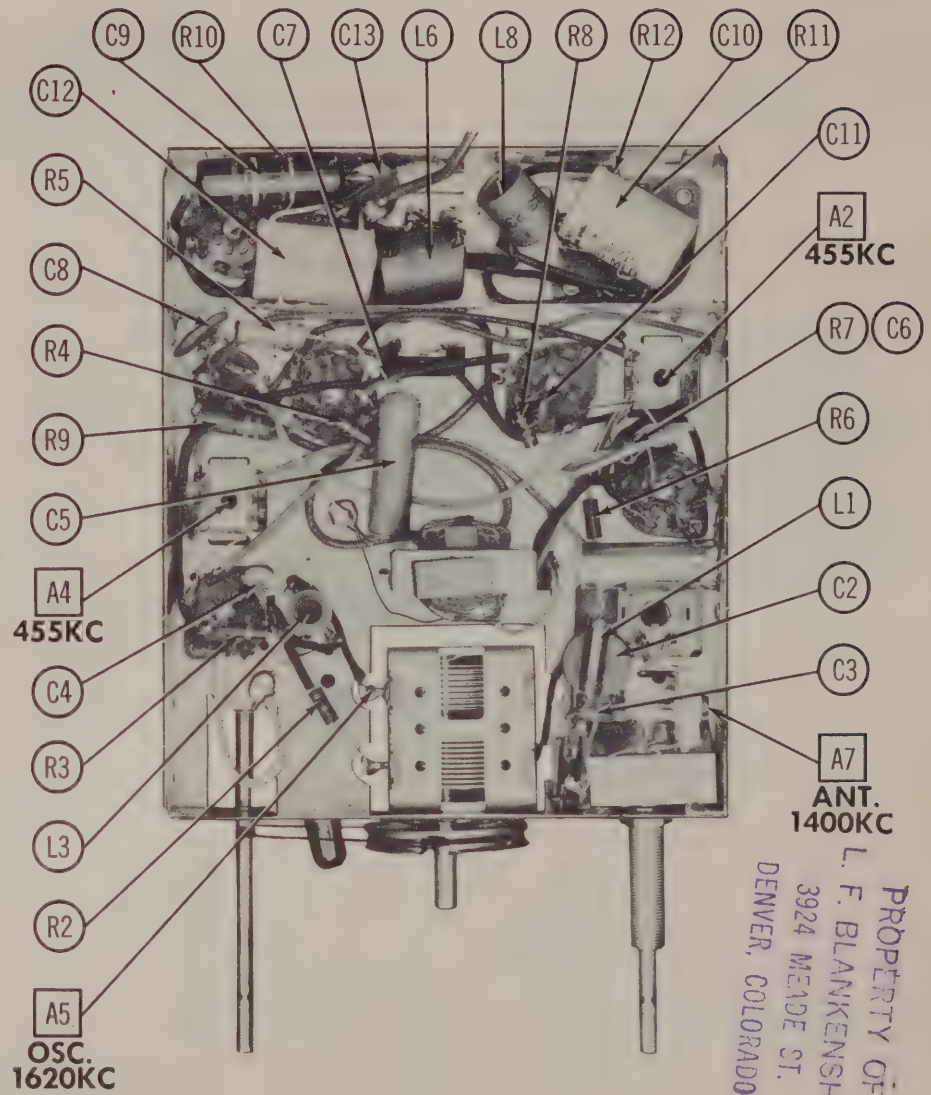
MISCELLANEOUS

ITEM No.	PART NAME	ALLSTATE PART No.	NOTES
M3	Dial Light	T89-12	#1815
M4	Tuning Cap.	T19-239	2 Gang (11-370MMF, 17-108MMF)
A7	Trimmer Cap.	T20-160	Ant. Trimmer
	Knob	T52-470	On-off-volume & tuning
	Dial	T67-585	



DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



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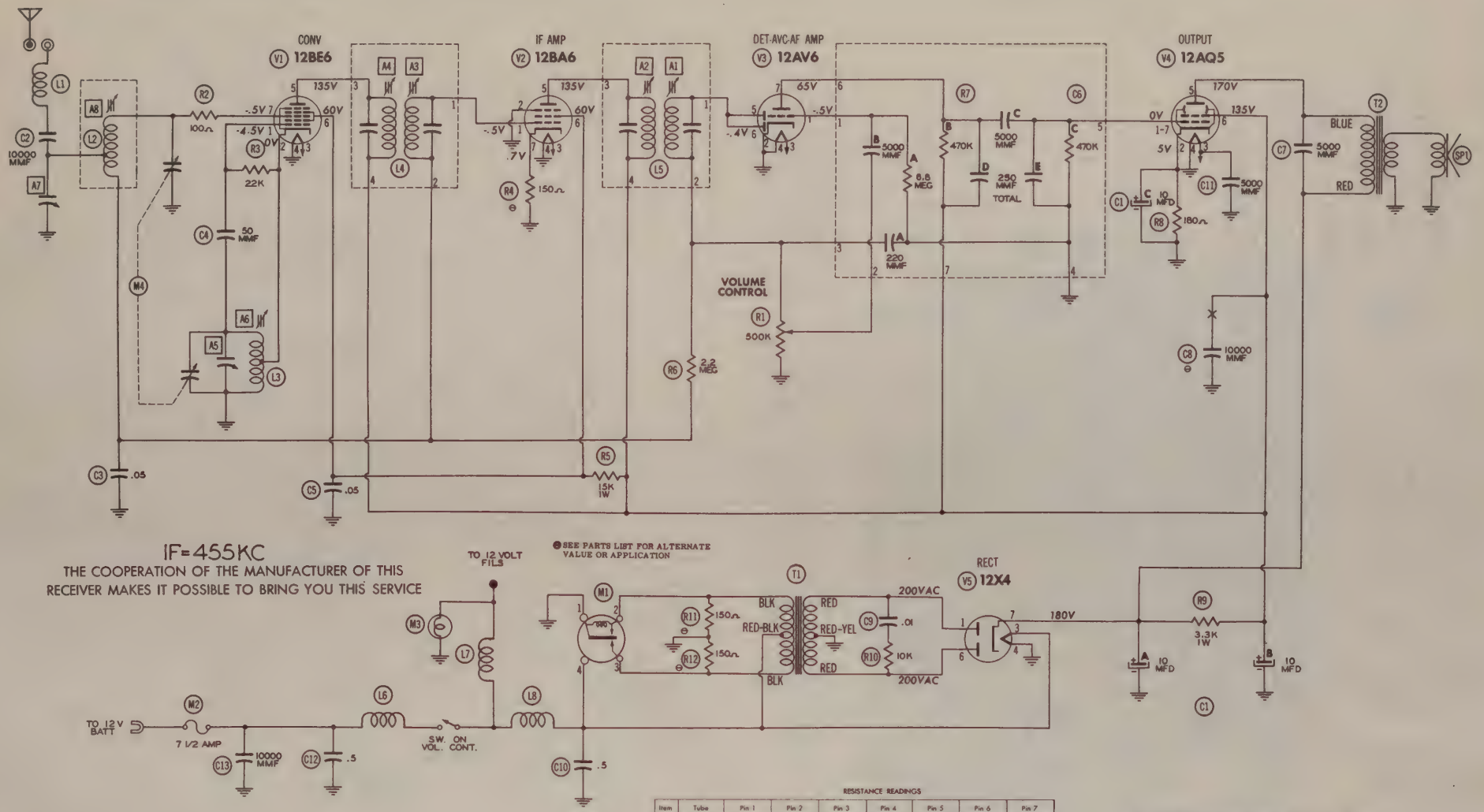

IF=455KC

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.8Ω	3Ω	0Ω	†3.3KΩ	†18.3KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	3Ω	0Ω	†3.3KΩ	†18.3KΩ	150Ω
V 3	12AV6	6.8Meg	0Ω	3Ω	0Ω	500KΩ	500KΩ	†473KΩ
V 4	12AQ5	470KΩ	180Ω	3Ω	0Ω	†400Ω	†3.3KΩ	470KΩ
V 5	12X4	500Ω	TP	3Ω	0Ω	NC	500Ω	100KΩ

† MEASURED FROM PIN 7 OF V5.
TP - TIE POINT
NC - NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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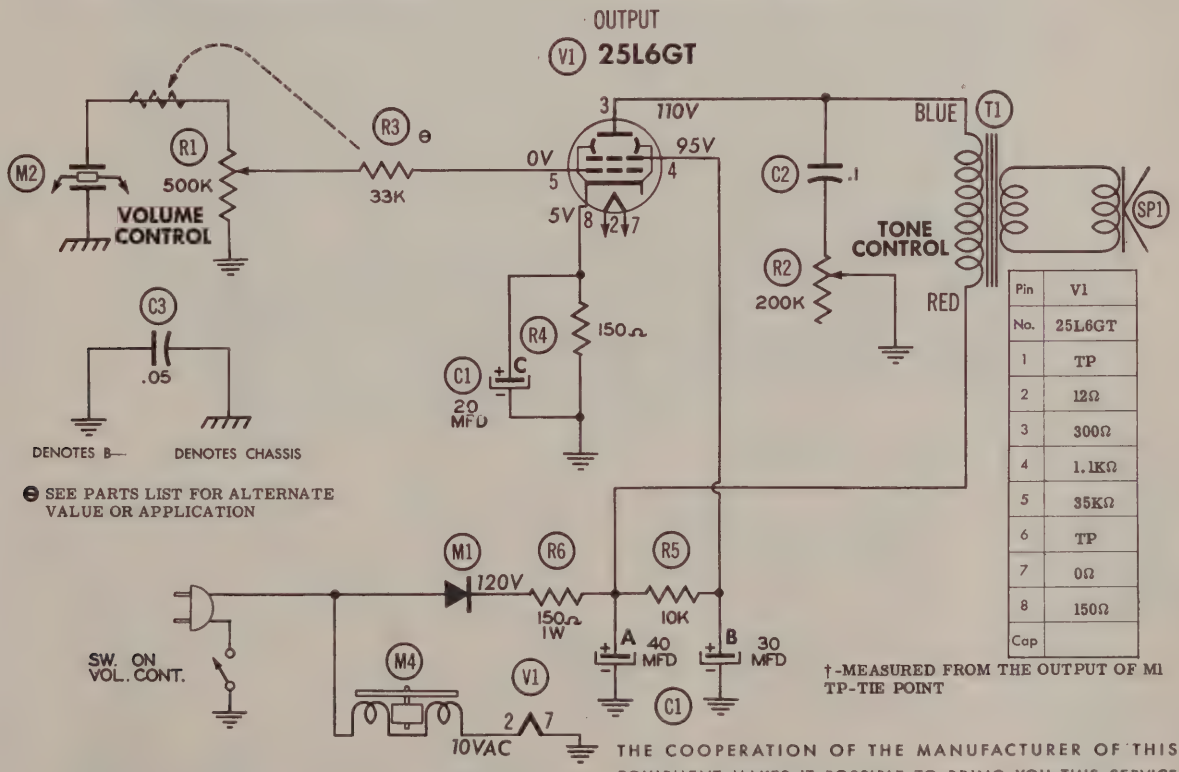
COLUMBIA RECORDS
MODEL 312

TRADE NAME	Columbia Records Model 312
MANUFACTURER	Columbia Records, 799 Seventh Ave., New York 19, N. Y.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Manual Record Player
TUBES (One)	Type 25L6GT Audio Amplifier
POWER SUPPLY	110-120 Volts AC-60 Cycles
RATING	.32 Amp. @ 117 Volts AC



Pin No.	V1 25L6GT
1	TP
2	12Ω
3	300Ω
4	1.1KΩ
5	35KΩ
6	TP
7	0Ω
8	150Ω
Cap	

†-MEASURED FROM THE OUTPUT OF M1 TP-TIE POINT

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		COLUMBIA PART No.	STANDARD REPLACEMENT		
V1	Audio output	25L6GT	25L6GT	7S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	COLUMBIA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	40	150				FP318-3	TM-403020-150	T-040	
B	30	150							
C	20	150							
C2	.1	200		DF-104		PT401	IMP4-P1	330401	
C3	05	400		DF-503		PT415	IMP4-S5	330415	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	COLUMBIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	BA012-424	Q13-133	A47-500K-Z	AB-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A
R2A	200KΩ	½	BA011-1393	Q11-129	A47-200K-S	AB-6	U-43	Tone
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	COLUMBIA PART No.	IRC PART No.	
R3	33KΩ	½		BTS-33K	
R4	150Ω	½		BTS-150	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	COLUMBIA PART No.	IRC PART No.	
R5	10KΩ	½		BTS-10K	
R6	150Ω	1		BTA-150	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	COLUMBIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.85KΩ	3.5Ω		Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	COLUMBIA PART No.	QUAM PART No.	
SP1	4"	PM	3.5Ω	CS504	4A1	

SELENIUM RECTIFIER

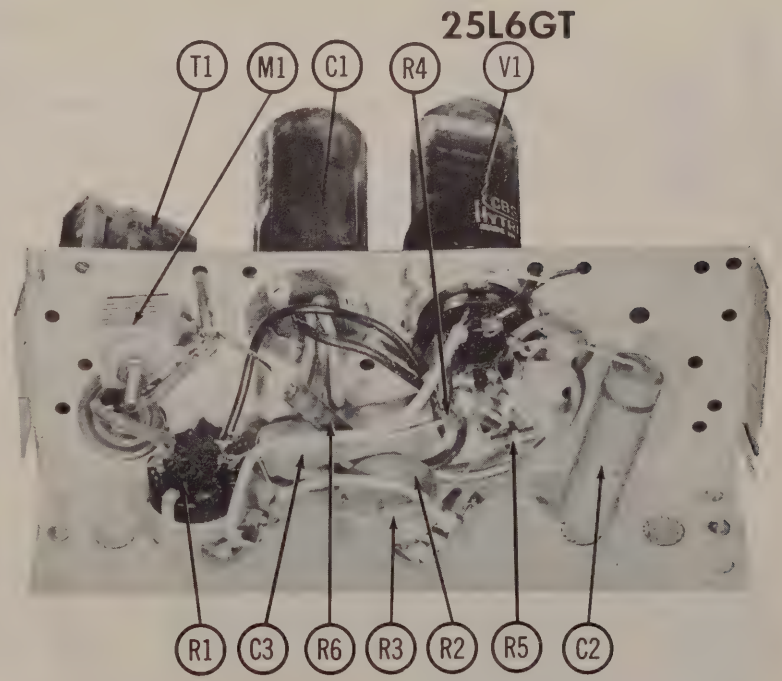
ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	COLUMBIA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.044A	CS505	1263A	RS-050	6S65	8J1	65	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	COLUMBIA PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2		66-TB		46T	0-1 or S-1 & 0-3	

ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	COLUMBIA PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M3	†CR-1S (or) ♦CR-1D and †CR-1MGS (or) ♦CR-1MGD	†CR-55 (or) ♦CR-55D and †CR-55LP (or) ♦CR-55LPD	†A-448 (or) ♦A-448D and †C-449 (or) ♦C-449D	†W-64S and †W-64MGS	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	COLUMBIA PART No.	NOTES
M4	Phono Motor	CS-511	With brown control knobs (His)
	Phono Motor	CS-518	With ivory control knob (Hers)
	Cabinet	CS-545	His
	Cabinet	CS-546	Hers
	Knob	CS-508	On-Off-Volume (His)
	Knob	CS-515	On-Off-Volume (Hers)
	Knob	CS-509	Tone-(His)
	Knob	CS-516	Tone-(Hers)
	Speaker Grille	CS-510	Tan (His)
	Speaker Grille	CS-517	Grey (Hers)
	Turn Table	CS-512	Tan (His)
	Turn Table	CS-519	Grey (Hers)

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MODEL TV2-9155A

MODEL TV2-9155A

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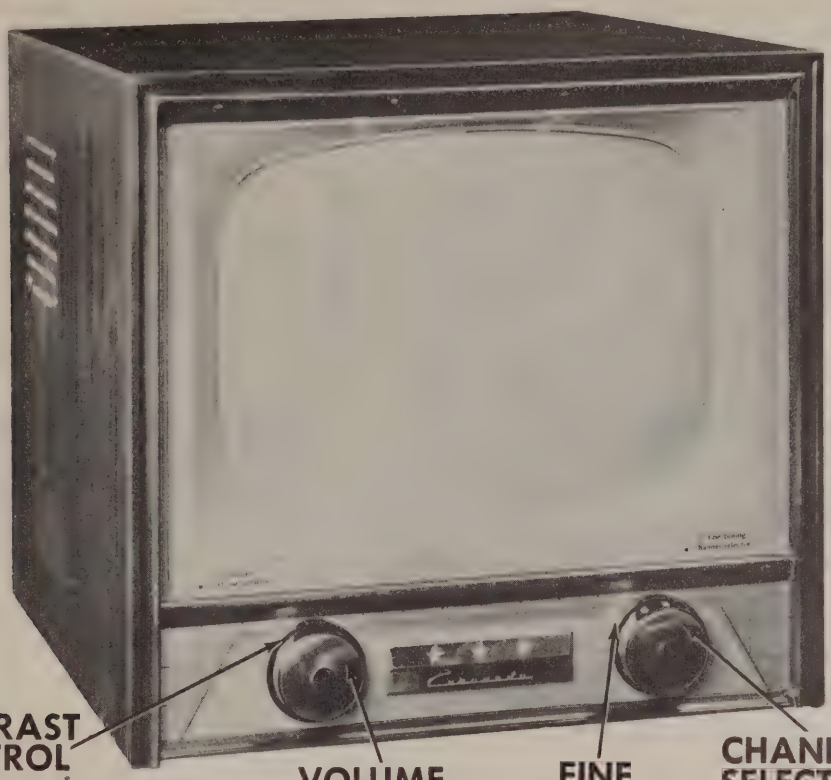

CORONADO
MODEL TV2-9155A

TRADE NAME	Coronado Model TV2-9155A
SUPPLIER	Gamble-Skogmo Inc., 15 North 8th. Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Twenty-Three

POWER SUPPLY 110-120 Volts AC-60 Cycle RATING 1.52 Amp. @ 117 Volts AC
TUNING RANGE—Channels 2 thru 13, Video IF 26.2MC, Sound IF 21.7 MC(Intercarrier)

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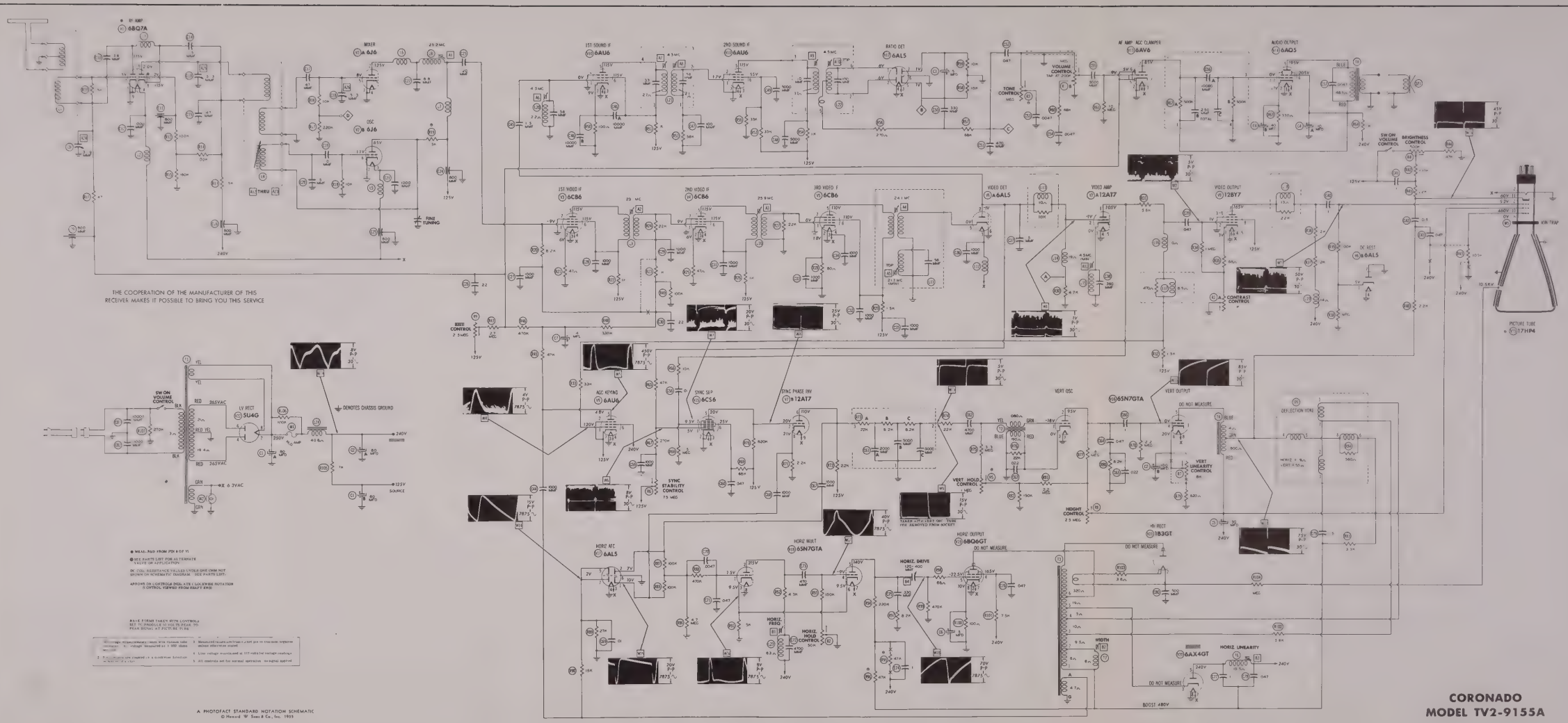
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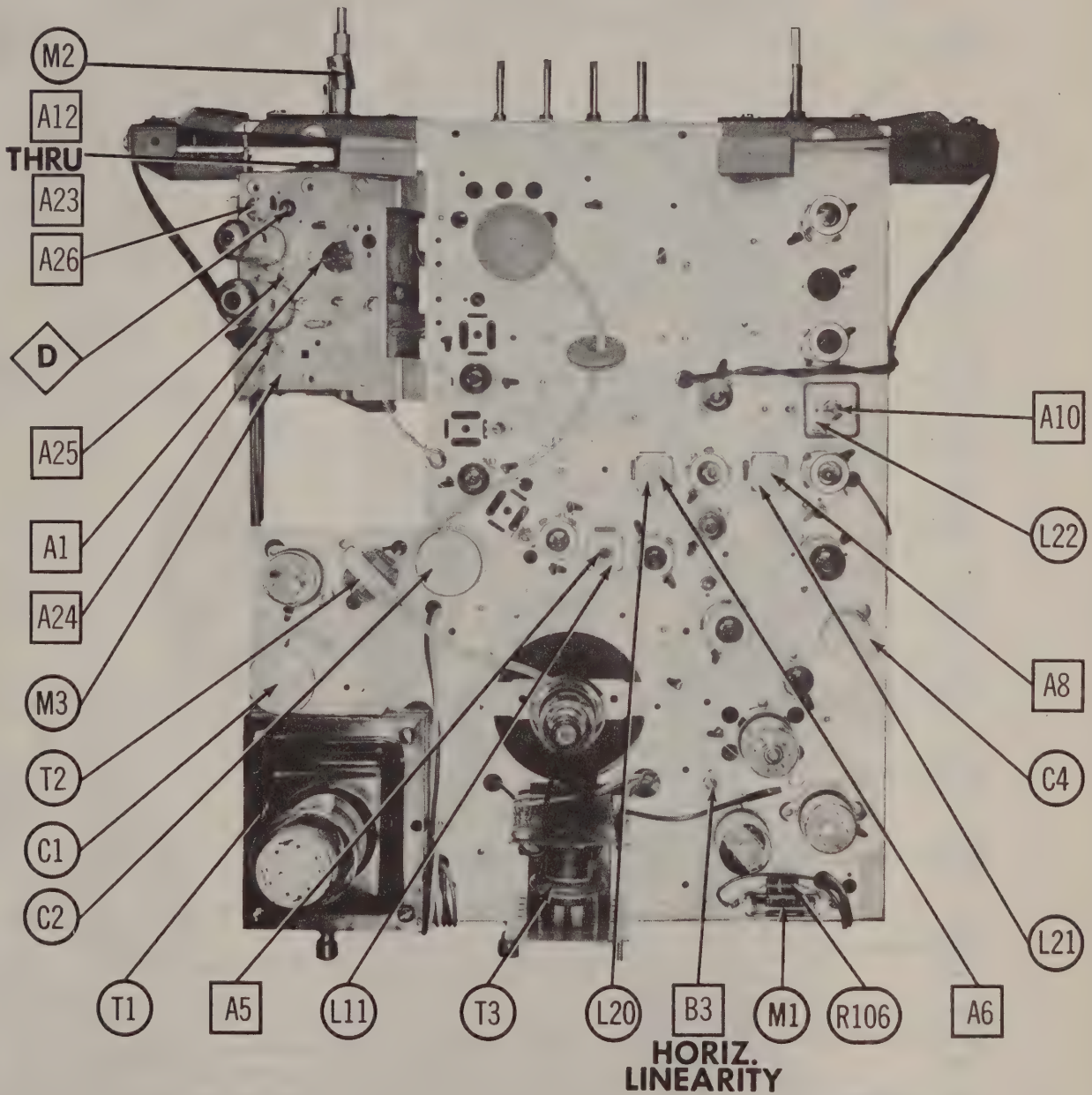
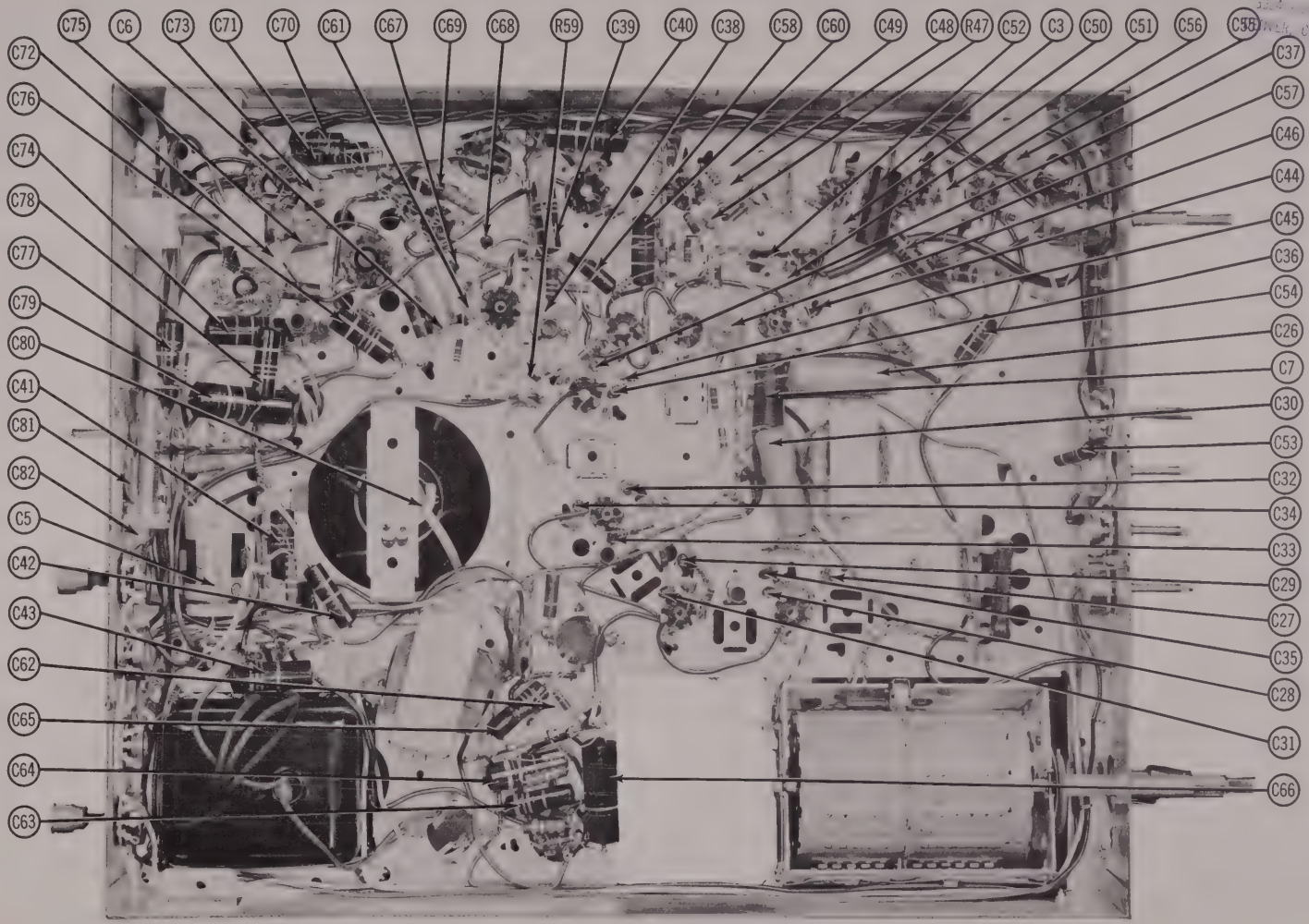


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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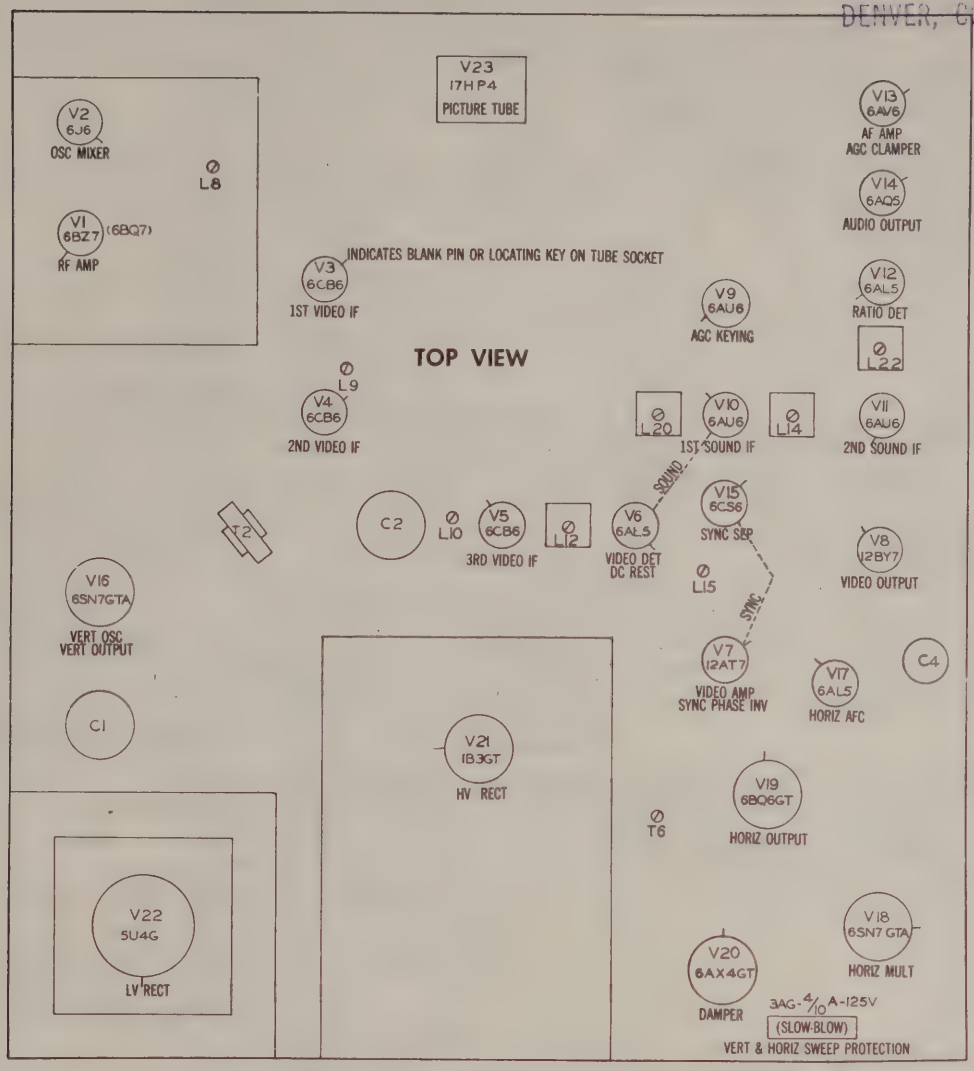
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V22, Fuse (M1)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V7, V8, V9, V23**
Has pic, no sound - **V10, V11, V12, V13, V14**
Overloaded picture - **V9, V13**

SYNC FAILURE
No vert. sync - **V7, V16**
No horiz. sync - **V7, V17, V18**
No vert. or horiz. sync - **V7, V15**

SWEEP FAILURE
No raster, has sound - **V18, V19, V20, V21, V23**
No vertical deflection - **V16**
Poor vert. linearity or foldover - **V16**
Poor horiz. linearity or foldover - **V18, V19, V20**
Narrow picture - **V18, V19, V20, V21, V22**
Vert. off freq. - **V7, V16**
Horiz. off freq. - **V7, V17, V18**

CORONADO
MODEL TV2-9155A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V18) from its socket.

VIDEO IF ALIGNMENT

Remove the oscillator mixer tube from its socket and replace it with a 6J6 with pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 4.5V battery to junction of R48 and R49. Connect the positive lead to chassis.
Connect a 5000MMF capacitor across the VTVM DC input.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over osc. mixer tube (V2). Low side to chassis.	25.2MC (Unmod)	Any	DC probe thru 22KΩ to point Ⓐ. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	25.9MC	"	"	A3	"
4.	"	"	24.1MC	"	"	A4	"
5.	"	"	21.7MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over osc.-mixer tube (V2). Low side to chassis.	24MC (10MC Swp)	21.7MC 23.0MC 23.5MC 25.25MC 26.2MC	Any	Vert. Amp. thru 22KΩ to point Ⓐ. Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point Ⓑ. Common to chassis.	A6, A7, A8, A9	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point Ⓑ. Low side to chassis.	A6, A7, A8, A9	Disconnect stabilizer capacitor (C3). Adjust for response curve similar to Fig. 2.
8.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A10	Reconnect stabilizer capacitor (C3). Adjust so that 4.5MC occurs at center of crossover lines as shown in Fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

Set contrast control at maximum.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to pin 2 of picture tube. Common to chassis.	A11	Short pin 1 (grid) of 6CB6 (V5) to chassis. Adjust for MINIMUM deflection.

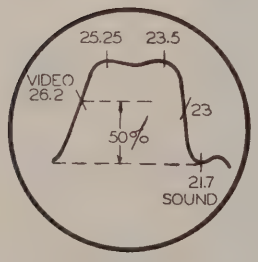


FIG. 1

FIG. 2

FIG. 3

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ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Remove dummy oscillator-mixer tube and replace the original 6J6 in its socket.
Move the negative lead of the 4.5V battery to the junction of R20 and C27.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point Ⓐ. Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

RF AND MIXER ALIGNMENT

Remove the 4.5 volt bias battery and connect the negative lead of a 1.5 volt battery to the ungrounded side of C9. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point Ⓓ. Low side to chassis.	A24, A25, A26	Adjust for response similar to Fig. 5.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 5. If markers fall below 70% on any channel make compromise adjustments of A24, A25 and A26 with channel switch set to that channel. Recheck all other channel to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

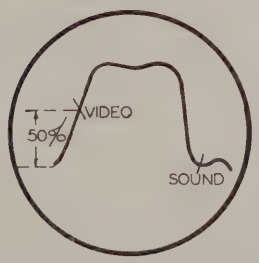


FIG. 4

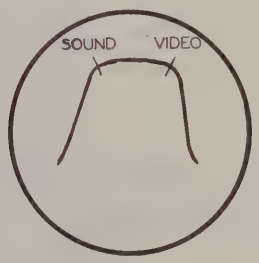
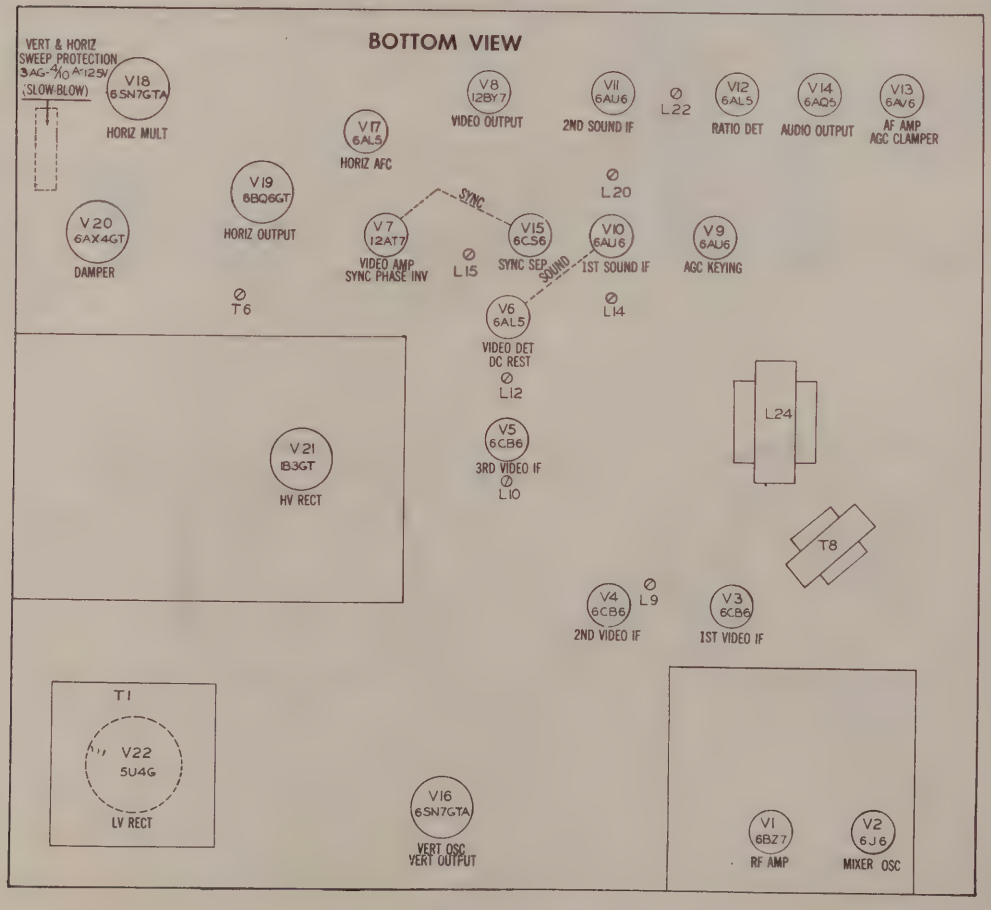


FIG. 5

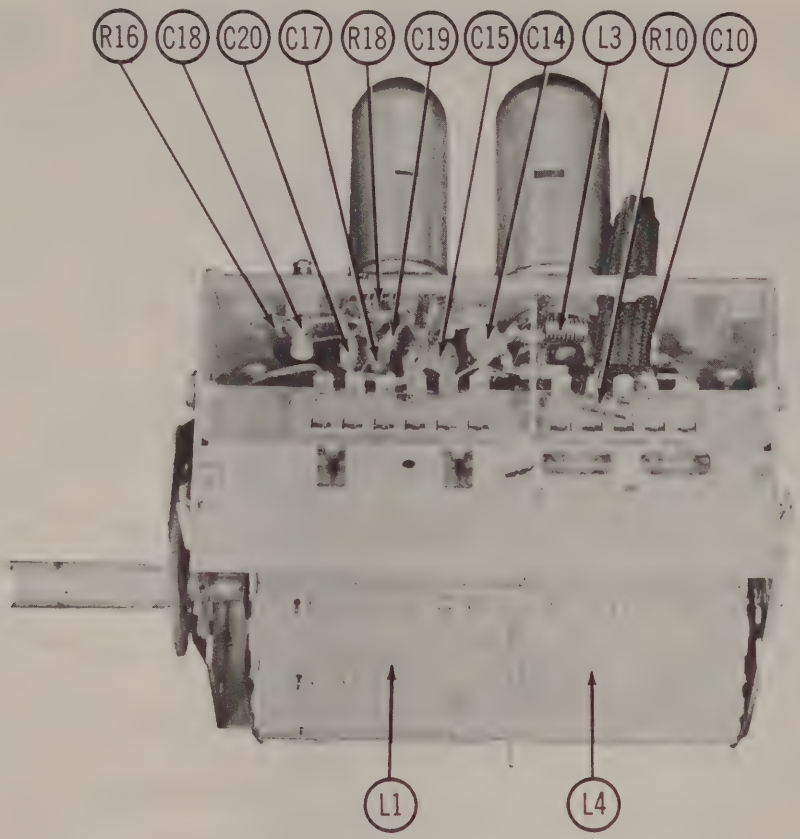
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	750KΩ	0Ω	.1Ω	0Ω	†1.5KΩ	†190KΩ	INF	0Ω
V 2	6J6	†17KΩ	†1.7KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	100KΩ	47Ω	0Ω	.1Ω	†2.7KΩ	†2.7KΩ	0Ω		
V 4	6CB6	100KΩ	47Ω	0Ω	.1Ω	†2.7KΩ	†2.7KΩ	0Ω		
V 5	6CB6	.3Ω	180Ω	0Ω	.1Ω	†3.2KΩ	†3.2KΩ	0Ω		
V 6	6AL5	1Meg	4.7KΩ	.1Ω	0Ω	.2Ω	0Ω	0Ω		
V 7	12AT7	†8.8KΩ	4.7KΩ	.3Ω	0Ω	0Ω	†2.2KΩ	†820KΩ	2.2KΩ	.1Ω
V 8	12BY7	150Ω	1Meg	0Ω	.1Ω	.1Ω	0Ω	†4KΩ	†1.7KΩ	0Ω
V 9	6AU6	†36KΩ	†1.7KΩ	0Ω	.1Ω	420KΩ	†40Ω	†1.7KΩ		
V 10	6AU6	2.2Ω	0Ω	.1Ω	0Ω	†2.7KΩ	†2.7KΩ	100Ω		
V 11	6AU6	56KΩ	0Ω	.1Ω	0Ω	†2.7KΩ	†30KΩ	0Ω		
V 12	6AL5	INF	INF	.1Ω	0Ω	10KΩ	0Ω	10KΩ		
V 13	6AV6	10Meg	0Ω	.1Ω	0Ω	750KΩ	750KΩ	500KΩ		
V 14	6AQ5	500KΩ	330Ω	0Ω	.1Ω	†1.5KΩ	†1KΩ	500KΩ		
V 15	6CS6	50KΩ	0Ω	.1Ω	0Ω	†820KΩ	†70KΩ	1.5Meg		
V 16	6SN7GTA	4Meg	▲2.5Meg	190Ω	2.2Meg	▲5KΩ	3KΩ	0Ω	.1Ω	
V 17	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	11KΩ	0Ω	11KΩ		
V 18	6SN7GTA	5.2Meg	†4.4KΩ	1.5KΩ	190KΩ	†300KΩ	1.5KΩ	.1Ω	0Ω	
V 19	6BQ6GT	INF	0Ω	470KΩ	†7.5KΩ	470KΩ	8.2KΩ	.1Ω	100Ω	TOP CAP ▲19Ω
V 20	6AX4GT	†40Ω	INF	140KΩ	†47KΩ	†55Ω	100KΩ	.1Ω	0Ω	
V 21	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲340Ω
V 22	5U4G	INF	50KΩ	INF	21Ω	INF	19Ω	INF	50KΩ	
V 23	17HP4	0Ω	1.1Meg	PIN 6 100KΩ	PIN 10 3.3KΩ	PIN 11 †230KΩ	PIN 12 .1Ω			

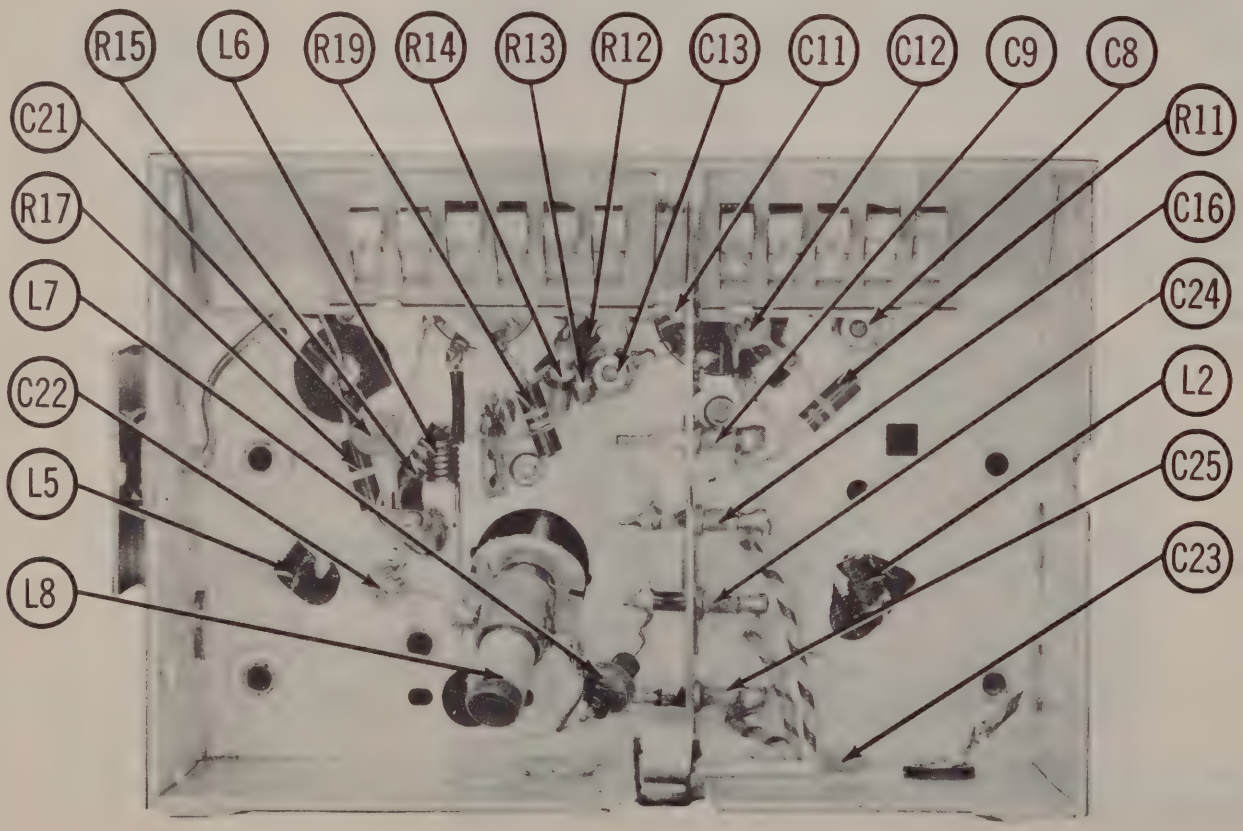
† MEASURED FROM PIN 2 OF V22
▲ MEASURED FROM PIN 3 OF V20



TUBE PLACEMENT CHART

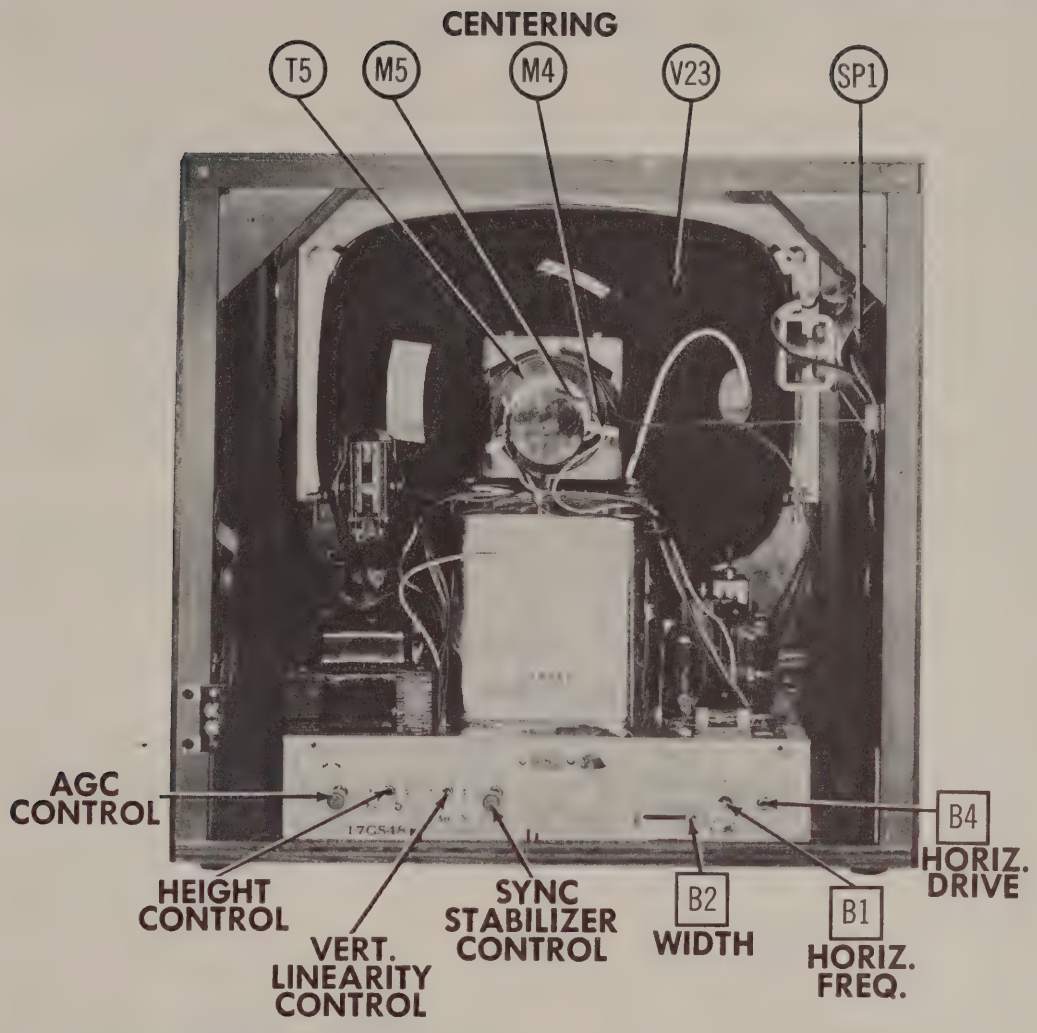


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPERTY OF
L. F. BLANKENSHIP
3824 MEADE ST.
DENVER, COLORADO



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until picture synchronizes horizontally.

Set the contrast control at minimum and advance the brightness control for normal brillance.

Adjust the width slug (B2) for a picture slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal drive trimmer (B4) in a clockwise dirction as far as possible without the presence of vertical white lines near the center of the picture.

Recheck adjustment (B1).

Adjust the horizontal linearity slug (B3) for picture that is symmetrical from left to right.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V19 and V20. Check adjustments B2, B3 and B4. Check T3, T5A, R101, R100, C76, C6 and other associated components.

DRIVE LINES

Check by substitution V19 and V20. Check adjustments B4 and B3. Check T3, T5A, R101, R97, C73, C6 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V19 and V20. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V18, V19 and V20. Check C71 for open. Check R85, R87, C72, L23 and other associated components.

XMAS TREE EFFECT

Check by substitution V18, V19 and V20. Check T3 and T5A for internal arcing. Check C69, C72, C73, C75, L23, R97, R94 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V16. Check waveform W11.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R83, R79, R7, C2B, C5 and other associated components.	Check T2, R77, R8, C66, C63 and other associated components.

INSUFFICIENT SWEEP

Substitute V16. Check height and vertical linearity controls for proper operation. Check T4, T5B, R77 and other associated components.

COMPRESSED AT BOTTOM

Substitute V16. Check C5, C64, C66, R77, R8 and other associated components.

COMPRESSED AT TOP

Substitute V16. Check R79, R7, C2B, T4 and other associated components.

FOLDS

Substitute V16. Check C64, C65, C66, R80, T4, T5B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V15 and V7. Check C58, C60, R66, R70, R69, R72, and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V16. Check vertical integrator network. Check C62, C63, R81, R75, R5, T2 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Check by substitution V17 and V18. Check horizontal AFC network. Check L23, C72, C73, R93, R2 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V15, V17 and V18. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Check by substitution V7 and V8. Check C39, C40, L19, L18, R36, R37, R31, R32 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A11. Check video IF alignment.

POOR CONTRAST

Check by substitution V7 and V8. Check L13, L17, L18, C39, C40, R35, R31 and R32. Check picture tube.

NEGATIVE PICTURE

Check by substitution V7 and V8. Check picture tube. Check video detector network. Check C39, C40 and other associated components.

SMEAR

Check by substitution V7 and V8. Check L13, L14, L16, L17, L18, C39, C40 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6, V7 and V8 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V10, V11, V12, V13 and V14. Check stages V13 and V14 using audio signal generator. Apply audio signal across R18.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C52, C55, C57, C56A, C4B C4A, R64, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A10. Check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V22. Check B+ filter and decoupling network. Check M1 fuse.

SMALL AND/OR DIM PICTURE

Substitute V22. Check B+ filter and decoupling network.

...TY OF
...F. BLANKENSHIP
3324 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BZ7	6BZ7	9AJ	6BQ7 used as an alternate.
V2	Mixer-Osc.	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Det-DC Restorer	6AL5	6AL5	6BT	
V7	Video Amp. -Sync Phase Inverter	12AT7	12AT7	9A	
V8	Video Output	12BY7	12BY7	9BF	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V12	Radio Det	6AL5	6AL5	6BT	
V13	AF Amp-AGC Clamper	6AV6	6AV6	7BT	
V14	Audio Output	6AQ5	6AQ5	7BZ	
V15	Sync Sep.	6CS6	6CS6	7CH	
V16	Vert. Osc. - Vert. Output	6SN7GTA	6SN7GTA	8BD	
V17	Horiz. AFC	6AL5	6AL5	6BT	
V18	Horiz. Mult	6SN7GTA	6SN7GTA	8BD	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6AX4GT	6AX4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	CORONADO PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V23	17HP4	17HP4/17RP4 17HP4B ①	17HP4/17RP4	17HP4/ 17RP4	17HP4/17RP4	12L 12L	① Aluminized

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	CORONADO PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲80	300	45X397			FP229.4	TM-D80-350	D-145	
B	▲60	300							
C2A	▲80	300	45X395			FP229.8	TM-3057	T-720	
B	▲100	50							
C3	5	25	45X378			TC30	TD-5-25	MMT-0505	
C4A	■10	300	45X410			FP230.3	TM-3086	T-695	
B	▲40	50							
C5	30	400	45X393			TC77	TD-30-450	FM-4530	
C6	5	25	45X378			TC30	TD-5-25	MMT-0505	
C7	4	100	45X361			TC40	TD-4-150	FM-1504	
C8	3-9		31B-207	829-10					
C9	800		13D-153	MFT-1000					
C10	3.6		CD8C3R6C						
C11	800		13D-196	MFT-1000					
C12	1000		CD8X102Z	DD-102	801-001	DC-521			
C13	.5-3		13B-206	829-3	3115-01-0R5	CT565A			
C14	1.5		CD8C1R5M	TCZ-1R5	NP0A-1R5	ZT-5515			
C15	47		CD8Q470K	D6-470	831-470	UC-5447			
C16	800		13D-153	MFT-1000					
C17	47		CD8Q470K	D6-470	831-470	UC-5447			
C18	.5-3		31B-206	829-3	3115-01-0R5	CT565A			
C19	10		CD10C100K	TCZ-10	NP0K-100	ZT-541			
C20	5		CD8U050C						
C21	1000		CD8X102Z	DD-102	801-001	DC-521			
C22	6.8		CD8C6R8C	TCZ-6R8	NP0K-6R8	ZT-5568			
C23	120		13D-055	DD-121	811-121	UC-5312			
C24	800		13D-153	MFT-1000					
C25	800		13D-153	MFT-1000					
C26	.22	200	RCP10M2224M			PT4022	IMP2-P22	3302022	
C27	1000		80X1	DD-102	801-001	DC-521		K-1210	
C28	1000		80X1	DD-102	801-001	DC-521		K-1210	
C29	1000		80X1	DD-102	801-001	DC-521		K-1210	
C30	.22	200	RCP10M2224M			PT4022	IMP2-P22	3302022	
C31	1000		80X1	DD-102	801-001	DC-521		K-1210	
C32	1000		80X1	DD-102	801-001	DC-521		K-1210	
C33	1000		80X1	DD-102	801-001	DC-521		K-1210	
C34	1000		80X1	DD-102	801-001	DC-521		K-1210	
C35	1000		80X1	DD-102	801-001	DC-521		K-1210	
C36	1000		80X1	DD-102	801-001	DC-521		K-1210	
C37	5		47X562	TCZ-5	NP0A-050	ZT-555		KR-1550	
C38	360	500	47X568					KR-1336	
C39	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C40	.1	400	RCP10M4104M	DF-104		PT401	IMP4-P1	330401	
C41	.1	200	RCP10M2104M	DF-104		PT401	IMP2-P1	330201	
C42	.015	600	RCP10M6153M			PT6115	IMP6-S15	3306115	
C43	.047	600	RCP10M6473M	DF-503		PT6147	IMP6-S47	3306147	
C44	1000		80X1	DD-102	801-001	DC-521		K-1210	
C45	1.5		47X584	TCZ-1R5	NP0A-1R5	ZT-5515			
C46A	10000	}	80X6	DD3-103	811-01	DC-511			
B	10000	}			811-01	DC-511			
C47	100		47X604	D6-101	GP1K-101	UC-531		K-1310	
C48	5000		47X507	DD-502	811-005	DC-525		C-1250	
C49	5000		47X507	DD-502	811-005	DC-525		C-1250	
C50	330	500	47X570	D6-331	GP2K-331	UC-5333		K-1333	
C51	470	500	47X525	D6-471	GP2K-471	MC245		K-1347	
C52	.047	200	RCP10M2473M	DF-503		PT4147	IMP2-S47	3302147	
C53	.0047	400	RCP10M4472M	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C54	.0047	400	RCP10M4472M	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C55	5000		47X507	DD-502	811-005	DC-525		C-1250	

PARTS LIST AND DESCR

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CORONADO PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C56A	10000								
B	250		†76X5	†PC-80	†1404-01				
C									
C57	.0047	600	RCP10M6472M	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C58	.01	400	RCP10M4103M	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C59	1000		80X1	DD-102	801-001	DC-521		K-1210	
C60	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C61A	2000					PT622	IMP6-D2	C-1220	
B	5000		♦76X7	♦PC-100	♦1405-01	PT625	IMP6-D5	C-1250	
C	5000					PT625	IMP6-D5	C-1250	
C62	4700	500	47X543			MCB465		CR-1247	
C63	.022	200	RCP10M2223M	DF-203	817-02	PT4122	IMP4-S22	3304122	
C64	.047	600	RCP10M6473M	DF-503		PT6147	IMP6-S47	3306147	
C65	.022	200	RCP10M2223M	DF-203	817-02	PT4122	IMP4-S22	3304122	
C66	.1	600	RCP10M6104M	DF-104		PT601	IMP6-P1	330601	
C67	1000		80X1	DD-102	801-001	DC-521		K-1210	
C68	1000		80X1	DD-102	801-001	DC-521		K-1210	
C69	.01	400	RCP10M4103M	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C70	.0047	400	RCP10M4472M	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C71	.047	200	RCP10M2473M	DF-503		PT4147	IMP2-S47	3302147	
C72	4700	500	47X543			MCB465		CR-1247	
C73	470	500	RCM20B471J			MCB245		KR-1347	
C74	.1	400	RCP10M4104M	DF-104		PT401	IMP4-P1	330401	
C75	330	500	47X570					KR-1333	
C76	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C77	.1	400	RCP10M4104M	DF-104		PT401	IMP4-P1	330401	
C78	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C79	.15	400	RCP10M4154M			PT4015	IMP4-P15	3304015	
C80	500	20000	47X560	TV3-502	413	HV20035A			
C81	10000		47X615	DD-103	811-01	DC-511			
C82	10000		47X615	DD-103	811-01	DC-511			

† Items C56A, C56B, C56C, R62A, R62B are combined in one unit.
When replacing items separately, C56B and C56C should total 250MMF.
♦ Items C61A, C61B, C61C, R73A, R73B, R73C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	B78X20A	*QJ-619	RTV-499	F1-4	UF13L	Contrast - Panel
B	1Meg	½				R2-57	UR16-T25	Volume Tapped at 200KΩ-Rear
C	Switch					KB-2	US-27	Attach to R1B
R2A	50KΩ	½	40X292A	Q11-123	A47-50K-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	40X291F	Q11-137	A47-1Meg-S	AB-69	U-54	Tone - Note 1
B	Shaft		Not Req.	NQ	RS-3/16	AK-8	DS-37	Attach to R3A
R4A	500KΩ	½	40X290D	Q11-133	A47-500K-S	AB-59	U-50	Brightness
B	Shaft		Not Req.	NQ	RS-3/16	AK-4	Not Req.	Attach to R4A
R5A	1Meg	½	40X291F	Q11-137	A47-1Meg-S	AB-69	U-54	Vert. Hold - Note 1
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-8	DS-37	Attach to R5A
R6A	7.5Meg	½	B40X370A	Q11-142	A47-7.5Meg-S			Sync Stability
B	Shaft		Not Req.	Not Req.	FKS-1/4			Attach to R6A
R7A	8000Ω	½	B40X375	Q11-116	A47-10K-S	AB-14	SU-20	Vert. Linearity
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	2.5Meg	½	B40X369A	Q11-239	A47-2.5Meg-S	BX-83	SU-565	Height
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R8A
R9A	2.5Meg	½	B40X369A	Q11-239	A47-2.5Meg-S	BX-83	SU-565	AGC
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R9A

Note 1: Some versions may use an alternate control part no. 40X291.
* CONCENTRIKIT EQUIVALENT: KIT K-2, BASE ELEMENTS & SHAFTS: B11-108 & P6-112 (PANEL)
B13-137X & R16-205 (REAR)
76-2 SWITCH

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R10	15KΩ	½	12A-004	BTS-15K	
R11	47KΩ	½	12A-039	BTS-47K	
R12	100KΩ	½	12A-094	BTS-100K	
R13	1500Ω	½	12A-183	BTS-1500	
R14	100KΩ 5%	½	12A-166	BTS-100K 5%	
R15	160KΩ 5%	½	12A-167	BTS-160K 5%	
R16	10KΩ	½	12A-040	BTS-10K	
R17	220KΩ	½	12A-041	BTS-220K	
R18	10KΩ	½	12A-040	BTS-10K	
R19	15KΩ	½		BTS-15K	Note 1
R20	8200Ω 5%	½	B83822	BTS-8200 5%	
R21	47Ω 5%	½	B83470	BTS-47 5%	
R22	1000Ω	½	B85102	BTS-1000	
R23	1000Ω	½	B85102	BTS-1000	
R24	22KΩ 5%	½	B83223	BTS-22K 5%	
R25	47Ω 5%	½	B83470	BTS-47 5%	
R26	1000Ω	½	B85102	BTS-1000	
R27	22KΩ 5%	½	B83223	BTS-22K 5%	
R28	180Ω	½	B84181	BTS-180	
R29	1500Ω	½	B84152	BTS-1500	
R30	4700Ω 5%	½	B83472	BTS-4700 5%	
R31	5600Ω	1	C84562	BTA-5600	
R32	1500Ω	½	B84152	BTS-1500	
R33	33KΩ	½	B84333	BTS-33K	
R34	1Meg	½	B84105	BTS-1Meg	
R35	68Ω	½	B84680	BTS-68	
R36	2000Ω	2	D83202	BTB-2000	
R37	2000Ω	2	D83202	BTB-2000	
R38	1Meg	½	B84105	BTS-1Meg	
R39	100KΩ	½	B84104	BTS-100K	
R40	2200Ω 5%	½	B84222	BTS-2200 5%	
R41	22KΩ 5%	1		BTA-22K 5%	
R42	100KΩ	½	B85104	BTS-100K	
R43	100KΩ	½	B85104	BTS-100K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R44	47KΩ	½	B85473	BTS-47K	
R45	47KΩ	½	B84473	BTS-47K	
R46	470KΩ	½	B84474	BTS-470K	
R47	2. 7Meg	½	B84275	BTS-2. 7Meg	
R48	330KΩ	½	B83334	BTS-330K	
R49	100KΩ	½	B84104	BTS-100K	
R50	100Ω	½	B84101	BTS-100	
R51	1000Ω	½	B85102	BTS-1000	
R52	56KΩ	½	B84563	BTS-56K	
R53	33KΩ	½	B84333	BTS-33K	
R54	1000Ω	½	B85102	BTS-1000	
R55	33KΩ	½	B84333	BTS-33K	
R56	270Ω	½	B84271	BTS-270	
R57	68KΩ	½	B84683	BTS-68K	
R58	10KΩ 5%	½	B83103	BTS-10K 5%	
R59	10KΩ 5%	½	B83103	BTS-10K 5%	
R60	68KΩ	½	B84683	BTS-68K	
R61	10Meg	½	B85106	BTS-10Meg	
R62A	500KΩ	½	†76X5	BTS-500K	
B	500KΩ	½		BTS-500K	
R63	330Ω	1	C84331	BTA-330	
R64	1000Ω	2	D84102	BTB-1000	
R65	47KΩ	½	B84473	BTS-47K	
R66	10KΩ	½	B84103	BTS-10K	
R67	270KΩ	½	B84274	BTS-270K	
R68	1. 5Meg	½	B84155	BTS-1. 5Meg	
R69	68KΩ	½	B84683	BTS-68K	
R70	820KΩ	½	B84824	BTS-820K	
R71	2200Ω 5%	½	B83222	BTS-2200 5%	
R72	2200Ω 5%	½	B83222	BTS-2200 5%	
R73A	22KΩ	½		BTS-22K	
B	8200Ω	½	♦76X7	BTS-8200	
C	8200Ω	½		BTS-8200	
R74	22KΩ 5%	1		BTA-22K 5%	

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R75	3.3Meg 5%	½	B83335	BTS-3. 3Meg 5%	
R76	22KΩ 5%	1		BTA-22K 5%	
R77	1. 8Meg	½	B84185	BTS-1. 8Meg	
R78	2. 2Meg	½	B84225	BTS-2. 2Meg	
R79	820Ω	½	B84821	BTS-820	
R80	8200Ω	½	B84822	BTS-8200	
R81	2. 2Meg	½	B84225	BTS-2. 2Meg	
R82	150KΩ	½	B84154	BTS-150K	
R83	3300Ω	1	C84332	BTA-3300	
R84	560Ω	½		BTS-560	
R85	100KΩ	½	B84104	BTS-100K	
R86	4.7Meg	½	B85475	BTS-4.7Meg	
R87	100KΩ	½	B84104	BTS-100K	
R88	470KΩ	½	B85474	BTS-470K	
R89	27KΩ	½	B84273	BTS-27K	
R90	15KΩ	1	C84153	BTA-15K	

Note 1: Some versions may use a 10KΩ
Note 2: Not used in some versions.
Note 3: Some versions may use a 47KΩ
† Items R62A, R62B, C56A, C56B and C
♦ Items R73A, R73B, R73C, C61A, C61B

TRANSFORMER

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	CORONADO PART No.	Stancor PART No.
T1	117VAC @ 1.52A	516VCT .230ADC	5VAC @ 3A	53X340A	
	SEC. 3	SEC. 4	SEC. 5		
	6. 3VAC @ 9.3A				

TRANSFORMERS (SW

ITEM No.	USE	CORONADO PART No.	Halldorson PART No.	Merit PART No.
T2	Vert. Osc. Trans.	54X10	B6702	A-3003
T3	Horiz. Output Trans.	53X329		
T4	Vert. Output Trans.	51X168	Z1806 ①	A-3039①
T5A	Yoke-Horiz. (13.5MH)	9A2334-2 ②	DF602 ④	MDF-72
B	Vert. (47MH)	2A435 ③	⑤	④⑤
T6	Horiz. Lin. Coil (1.2-6.5MH)	9A2262	RF800 ⑥ ⑦	MWC-6 ⑥
T7	Width Coil (.1-.6MH)	9A2183		

① Drill new mounting hole(s).
② Includes resistor R84.
③ Yoke cover and positioning device.
④ Use original yoke damping network and leads. Connect as in ori
⑤ Use original yoke cover and positioning device.
⑥ Enlarge mounting hole.
⑦ Connect to terms #3 and #4.
⑧ Connect to coded blue and green terms.
⑨ Drill new mounting hole or use original slider and core.

*HORIZONTAL OUTPUT TRANS

Use Original Width Coil Unless

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacemen Connection
	6			10
	5			8
	4			6
	3			Note ⑩
	2			N. C.
	1			3
	A			2
	G			1
Connect Width Coil Across →	2 & 1			212R1 across 2 & 1
Special Notes →				⑩

⑩ Connect a 47MMF or 56MMF capacitor from term #6 to ope
⑪ Jumper terms #9 and "T".

PROPERTY OF
L. F. CLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA CORONADO PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C55A	10000								
B	250		†76X5	†PC-80	†1404-01				
C									
C57	.0047	600	RCP10M6472M	DS-472	GP3-333-472	PT6247	IMP4-D47	3306347	
C58	.01	400	RCP10M4103M	DS-103	GP3-333-103	PT4U	IMP4-S1	3304U	
C59	1000		80X1	DD-102	801-001	DC-521		K-1210	
C60	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	K-1210	
C61A	3000					PT623	IMP4-D3	C-1230	
B	5000		•76X7	•PC-100	•1406-01	PT625	IMP4-D5	C-1250	
C	5000					PT625	IMP4-D5	C-1250	
C62	4700	500	47X543			MC3465		CR-1247	
C63	.033	200	RCM20B473J	DF-303	817-03	PT4133	IMP4-S33	3304133	
C64	.047	600	RCP10M6473M	DF-503		PT6147	IMP4-S47	3306147	
C65	.022	200	RCP10M2233M	DF-203	817-02	PT4133	IMP4-S22	3304133	
C66	.1	600	RCP10M6104M	DF-104		PT601	IMP6-P1	3306U1	
C67	1000		80X1	DD-102	801-001	DC-521		K-1210	
C68	1000		80X1	DD-102	801-001	DC-521		K-1210	
C69	.01	400	RCP10M4103M	DS-103	GP3-333-103	PT4U	IMP4-S1	3304U	
C70	.0047	400	RCP10M4472M	DS-472	GP3-333-472	PT6247	IMP6-D47	3306247	
C71	.047	400	RCP10M4473M	DF-503		PT4147	IMP6-D47	3304147	
C72	4700	500	47X543			MC3465		CR-1247	
C73	.470	200	RCM20B471J			MC3445		KR-1347	
C74	.1	400	RCP10M4104M	DF-104		PT401	IMP4-P1	3304U	
C75	330	500	47X570					KR-1333	
C76	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C77	.1	400	RCP10M4104M	DF-104		PT401	IMP4-P1	3304U	
C78	.047	400	RCP10M4473M	DF-503		PT4147	IMP4-S47	3304147	
C79	.15	400	RCP10M4154M			PT4015	IMP4-P15	3304015	
C80	500	20000	47X560	TV3-503	413	HV20035A			
C81	10000		47X615	DD-103	811-01	DC-511			
C82	10000		47X615	DD-103	811-01	DC-511			

† Items C56A, C56B, C56C, R62A, R62B are combined in one unit.
When replacing items separately, C56B and C56C should total 3500MMF.
• Items C61A, C61B, C61C, R73A, R73B, R73C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	B78X20A	•QJ-S19	R7V-699	F1-4	UF15L	Contrast - Panel
B	1Meg	½				R7-57	UR6-T25	Volume Tapped at 200KΩ-Rear
C	Switch					KB-2	U8-37	Attach to R1B
R2A	50KΩ	½	40X392A	Q11-123	A47-50K-S	U-35	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KS3-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	40X391F	Q11-137	A47-1Meg-S	AB-89	U-54	Tone - Note 1
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-3	Not Req.	Attach to R3A
R4A	500KΩ	½	40X290D	Q11-133	A47-500K-S	AB-59	U-50	Brightness
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-4	Not Req.	Attach to R4A
R5A	1Meg	½	40X391F	Q11-137	A47-1Meg-S	AB-89	U-54	Vert. Hold - Note 1
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-3	U6-37	Attach to R5A
R6A	7.5Meg	½	B403370A	Q11-143	A47-7.5Meg-S			Sync Stability
B	Shaft		Not Req.	Not Req.	FK3-1/4			Attach to R6A
R7A	2000Ω	½	B402375	Q11-118	A47-10K-S	AB-14	6U-20	Vert. Linearity
B	Shaft		Not Req.	RQ	FK3-1/4	AK-1	Not Req.	Attach to R7A
R8A	2.5Meg	½	B402359A	Q11-139	A47-2.5Meg-S	BX-83	SU-565	Height
B	Shaft		Not Req.	RQ	FK3-1/4	Not Req.	Not Req.	Attach to R8A
R9A	2.5Meg	½	B402369A	Q11-139	A47-2.5Meg-S	BX-83	SU-565	AGC
B	Shaft		Not Req.	RQ	FK3-1/4	Not Req.	Not Req.	Attach to R9A

Note 1: Some versions may use an alternate control part no. 40X391.
• CONCENTRIKIT EQUIVALENT: KIT K-2, BASE ELEMENTS & SHAFTS: BU-108 & P6-112 (PANEL)
B15-157X & R16-205 (REAR)
T6-3 SWITCH

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R10	15KΩ	½	12A-096	BTS-15K	
R11	47KΩ	½	12A-039	BTS-47K	
R12	100KΩ	½	12A-094	BTS-100K	
R13	1500Ω	½	12A-183	BTS-1500	
R14	330KΩ 5%	½	12A-186	BTS-330K 5%	
R15	680KΩ 5%	½	12A-167	BTS-680K 5%	
R16	10KΩ	½	12A-040	BTS-10K	
R17	220KΩ	½	12A-041	BTS-220K	
R18	10KΩ	½	12A-040	BTS-10K	
R19	15KΩ	½		BTS-15K	Note 1
R20	6200Ω 5%	½	B63822	BTS-6200 5%	
R21	470 5%	½	B63470	BTS-47 5%	
R22	1000Ω	½	B65102	BTS-1000	
R23	1000Ω	½	B65102	BTS-1000	
R24	22KΩ 5%	½	B63223	BTS-22K 5%	
R25	47Ω 5%	½	B63470	BTS-47 5%	
R26	1000Ω	½	B65102	BTS-1000	
R27	22KΩ 5%	2	B63223	BTS-22K 5%	
R28	180Ω	½	B64181	BTS-180	
R29	150Ω	½	B64152	BTS-150	
R30	4700Ω 5%	½	B63472	BTS-4700 5%	
R31	5600Ω	½	C64563	BTA-5600	
R32	1500Ω	½	B64152	BTS-1500	
R33	33KΩ	½	B64333	BTS-33K	
R34	1Meg	½	B64105	BTS-1Meg	
R35	68Ω	½	B64680	BTS-68	
R36	2000Ω	2	D63202	BTD-2000	
R37	2000Ω	2	D63202	BTD-2000	
R38	1Meg	½	B64105	BTS-1Meg	
R39	100KΩ	½	B64104	BTS-100K	
R40	2200Ω 5%	1	B64222	BTS-2200 5%	
R41	22KΩ 5%	½		BTS-22K 5%	
R43	100KΩ	½	B65104	BTS-100K	
R43	100KΩ	½	B65104	BTS-100K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R44	47KΩ	½	B65473	BTS-47K	
R45	47KΩ	½	B64473	BTS-47K	
R46	470KΩ	½	B64474	BTS-470K	
R47	2.7Meg	½	B64275	BTS-2.7Meg	
R48	330KΩ	½	B63334	BTS-330K	
R49	100KΩ	½	B64104	BTS-100K	
R50	100Ω	½	B64101	BTS-100	
R51	1000Ω	½	B65102	BTS-1000	
R52	56KΩ	½	B64563	BTS-56K	
R53	33KΩ	½	B64333	BTS-33K	
R54	1000Ω	½	B65102	BTS-1000	
R55	33KΩ	½	B64333	BTS-33K	
R56	27KΩ	½	B64273	BTS-27K	
R57	68KΩ	½	B64683	BTS-68K	
R58	10KΩ 5%	½	B63103	BTS-10K 5%	
R59	1.5Meg	½	B64155	BTS-1.5Meg	
R60	68KΩ	½	B64683	BTS-68K	
R61	10Meg	½	B65106	BTS-10Meg	
R62A	500KΩ	½		BTS-500K	
B	500KΩ	½		BTS-500K	
R63	250Ω	1	C64231	BTA-250	
R64	1000Ω	2	D64102	BTD-1000	
R65	47KΩ	½	B64473	BTS-47K	
R66	10KΩ	½	B64103	BTS-10K	
R67	270KΩ	½	B64274	BTS-270K	
R68	1.5Meg	½	B64155	BTS-1.5Meg	
R69	68KΩ	½	B64683	BTS-68K	
R70	820KΩ	½	B64824	BTS-820K	
R71	2200Ω 5%	½	B63222	BTS-2200 5%	
R72	2200Ω 5%	½	B63222	BTS-2200 5%	
R73A	22KΩ			BTS-22K	
B	6200Ω			BTS-6200	
C	6200Ω			BTS-6200	
R74	22KΩ 5%	½		BTS-22K 5%	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CORONADO PART No.	IRC PART No.	NOTES
R91	15000Ω 5%	½	B63152	BTS-1500 5%	
R93	4300Ω 5%	1	C63432	BTA-4300 5%	
R93	150KΩ 5%	½	B63154	BTS-150K 5%	
R94	220KΩ 5%	½	B63334	BTS-220K 5%	
R95	47KΩ	1		BTA-47K	Note 2
R96	47KΩ	1	C64473	BTA-47K	Note 3
R97	8200Ω	½	B64822	BTS-8200	
R98	68Ω	½	B65682	BTS-68	
R99	470KΩ	½	B64474	BTS-470K	
R100	10Ω	2	D64101	BTB-100	
R101	75000Ω 5%	2	D63753	BTB-7500 5%	
R102	5600Ω	½	B64562	BTS-5600	
R103	3.6Ω	1			
R104	1Meg	½	C65105	BTA-1Meg	
R105	1700Ω	10	43X286		
R106	100KΩ	2	D65104	BTB-100K	
R107	270KΩ	½	B65274	BTS-270K	

Note 1: Some versions may use a 10KΩ resistor in this application.
Note 2: Not used in some versions.
Note 3: Some versions may use a 47KΩ ½ watt resistor in this application.
† Items R62A, R62B, C56A, C56B and C56C are combined in one unit.
• Items R73A, R73B, R73C, C61A, C61B and C61C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA CORONADO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Thordarson PART No.	Thordarson PART No.
T1	117VAC	516VCT	5VAC	S3X340A						
	⑨ 1.52A	.230ADC	⑨ 3A							
	SEC. 3	SEC 4	SEC 5							
	6.3VAC									
	⑨ 9.3A									

TRANSFORMERS (SWEEP CIRCUITS)

	USE	REPLACEMENT DATA CORONADO PART No.	Halldorson PART No.	Merit PART No.	RCA TV2PL No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	54X10	B5702	A-3003	209T1 ①	V405	A-8125	24A67 ①	A-97L
T3	Horiz. Output Trans.	53X329			223T1 & 21HR1 •①	XU10 •			D-35 & WC-129①
T4	Vert. Output Trans.	51X288	Z1808 ①	A-3039①	226T1 ①	V312 ①	A-8141 ①	26S54 ①	A-104X ①
T5A	Yoke-Horiz. (13.5MH)	9A2334-2 ④	DF803 ④	MDF-72 ④	21D2 ③ ④	TY07F14 ④	DY-9A ④	Y-4 ④	Y-17 ④
B	Vert. (47MH)	2A425 ③	⑤	⑤			⑤	⑤	⑤
T6	Horiz. Lin. Coil (1.2-5.9MH)	9A2262	RF800 ⑥ ⑦	MWC-6 ⑥	21HR1	20UR15	WC-8	WC-18 ⑥	WC-12 ⑥
T7	Width Coil (1-.8MH)	9A2183		20UR4 ⑥	20UR4 ⑥	WC-4 ⑥	WC-15 ⑥		

① Drill new mounting hole(s).
② Includes resistor R94.
③ Yoke cover and positioning device.
④ Use original yoke damping network and leads. Connect as in original circuit.
⑤ Use original yoke cover and positioning device.
⑥ Enlarge mounting hole.
⑦ Connect to terms #3 and #4.
⑧ Connect to coded blue and green terms.
⑨ Drill new mounting hole or use original slider and core.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	6			10	13			10
	5			8	Jumper 10 & 11			8
	4			6	9			6
	3			Note ⑫	4			Note ⑫
	2			N.C.	2			N.C.
	1			1	1			2
	A			3	9			1
	G			11	6			4
Connect Width Coil Across	2 & 1			21HR1 across 2 & 1	2 & 1			WC-15 Blue & Red Terms Across 2 & 1
Special Notes				⑩				⑪ ⑪

⑩ Connect a 47MMF or 56MMF capacitor from term #6 to open end of R101. (Orig. term #3 lead.)
⑪ Jumper terms #9 and "I".

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA CORONADO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T8	5.1KΩ	3.2Ω	51X166	A-3877	A-2930	S-3X	Z1107	24S51	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP	REPLACEMENT DATA CORONADO PART No.	QUAM PART No	NOTES
SP1	6"	PM	3.6Ω	12A516	6A21	

COILS (RF-IF)

ITEM No.	USE	DC RES PRI.	DC RES SEC.	REPLACEMENT DATA CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0ΩCT	0Ω	9A2278-1				Channel 2
B	Ant. Coil	0ΩCT	0Ω	9A2278-2				Channel 3
C	Ant. Coil	0ΩCT	0Ω	9A2278-3				Channel 4
D	Ant. Coil	0ΩCT	0Ω	9A2278-4				Channel 5
E	Ant. Coil	0ΩCT	0Ω	9A2278-5				Channel 6
F	Ant. Coil	0ΩCT	0Ω	9A2278-6				Channel 7
G	Ant. Coil	0ΩCT	0Ω	9A2278-7				Channel 8
H	Ant. Coil	0ΩCT	0Ω	9A2278-8				Channel 9
I	Ant. Coil	0ΩCT	0Ω	9A2278-9				Channel 10
J	Ant. Coil	0ΩCT	0Ω	9A2278-10				Channel 11
K	Ant. Coil	0ΩCT	0Ω	9A2278-11				Channel 12
L	Ant. Coil	0ΩCT	0Ω	9A2278-12				Channel 13
L1A	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-1				Channel 2
B	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-2				Channel 3
C	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-3				Channel 4
D	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-4				Channel 5
E	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-5				Channel 6
F	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-6				Channel 7
G	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-7				Channel 8
H	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-8				Channel 9
I	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-9				Channel 10
J	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-10				Channel 11
K	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-11				Channel 12
L	RF, Mixer Grid, & Osc. Coils	0Ω		9A2279-12				Channel 13
L5	Fil. Choke	0Ω		9A-575				
L6	RF Choke	0Ω		31B-295				
L7	RF Coil	1.8Ω		31B-230				
L8	1st Video IF	1Ω		31A-078				
L9	2nd Video IF	.3Ω	.2Ω	9A2230	17-1063	TV-116	6249	
L10	3rd Video IF	.3Ω	.2Ω	9A2230	17-1064	TV-116	6250	
L11	4th Video IF	.3Ω	.2Ω	9A2233				Includes 21.7MC Trap
L12	Fil. Choke	0Ω		9A2033	19-3001	TV-189	4602	
L13	Series Peaking Coil	10Ω		36A35	19-7100•	TV-181•	4633•	100 Microhenrys; Wound on 10KΩ resistor
L14	Shunt Peaking Coil	18Ω		36A37	19-2300		6155	325 Microhenries
L15	4.5MC trap	.3Ω		9A3076	30-1004	TV-151	1640	
L16	Shunt Peaking Coil	10Ω		36A1	19-7100	TV-181	4632	100 Microhenries
L17	Shunt Peaking Coil	8.5Ω		36A33	19-7100•	TV-181•	4633•	100 Microhenries; Wound on 47Ω resistor
L18	Series Peaking Coil	13Ω		36A13	19-4180	TV-186•	4644•	180 Microhenries; Wound on 33KΩ resistor
L19	Shunt Peaking Coil	14Ω		36A2	19-3180	TV-184	6180	190 Microhenries
L20	1st Sound IF	2.2Ω		9A2231	18-5465•	TV-113•	1470A•	
L21	2nd Sound IF	2.7Ω	2.1Ω	9A2233	18-5467•	TV-113	6263	
L22	Ratio Det.	3.7Ω	.6DCT	9A2295	17-1023	TV-110	1468	Tertiary winding = .4Ω
L23	Horiz. Osc.	63Ω		9A2096	19-1578	TV-163	6210	

* Parallel with 10KΩ resistor.
■ Parallel with 47Ω resistor.
▲ Parallel with 22KΩ resistor.
• Use one winding only and drill mounting holes.
★ Use one winding only.
† Drill new mounting holes.

CORONADO
MODEL TV2-9155A

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	CORONADO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L24	.230ADC	40. 6Ω	.83HY	52X95	C-2326 ①	C-2996 ①	C-23X ①	C5037 ①	26C44

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CORONADO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	4/10A-125V	16X147-3	16X146	313. 400 (3AG S/B 4/10A)	357001	MDL 4/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M2	Dial Light	7A32	#51, Bayonet
M3	Tuner	25A1094	VHF
M4	Centering Magnet	2A435	Includes yoke cover
M5	Ion trap	2A421	
B4	Trimmer cap.	17A269	Horiz. Drive (120-400MMF)
	Knob	10A820-1	Fine Tuning
	Knob	10A840-1	Contrast
	Knob	10A812-1	Channel selector
	Knob	10A841-1	On-Off-Volume
	Knob	10A826	Red-Secondary Controls
	Safety Glass	17X184	
	Mask	4X1232-1	

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3024 MEADE ST.
DENVER, COLORADO

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V18, V19, V20 and V21. Check waveform W18.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, R101, R100, C77, C78, C76 and other associated components.	Check C72, C73, C75, L23, R92, R94, R91 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V19, V20 and V22. Check R101, R97, C75, C6, T3, T5A and other associated components.

BLOOMING

Check by substitution V19, V20, V21 and V22. Check R104, R101, C79, C75 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6, V7 and V8. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

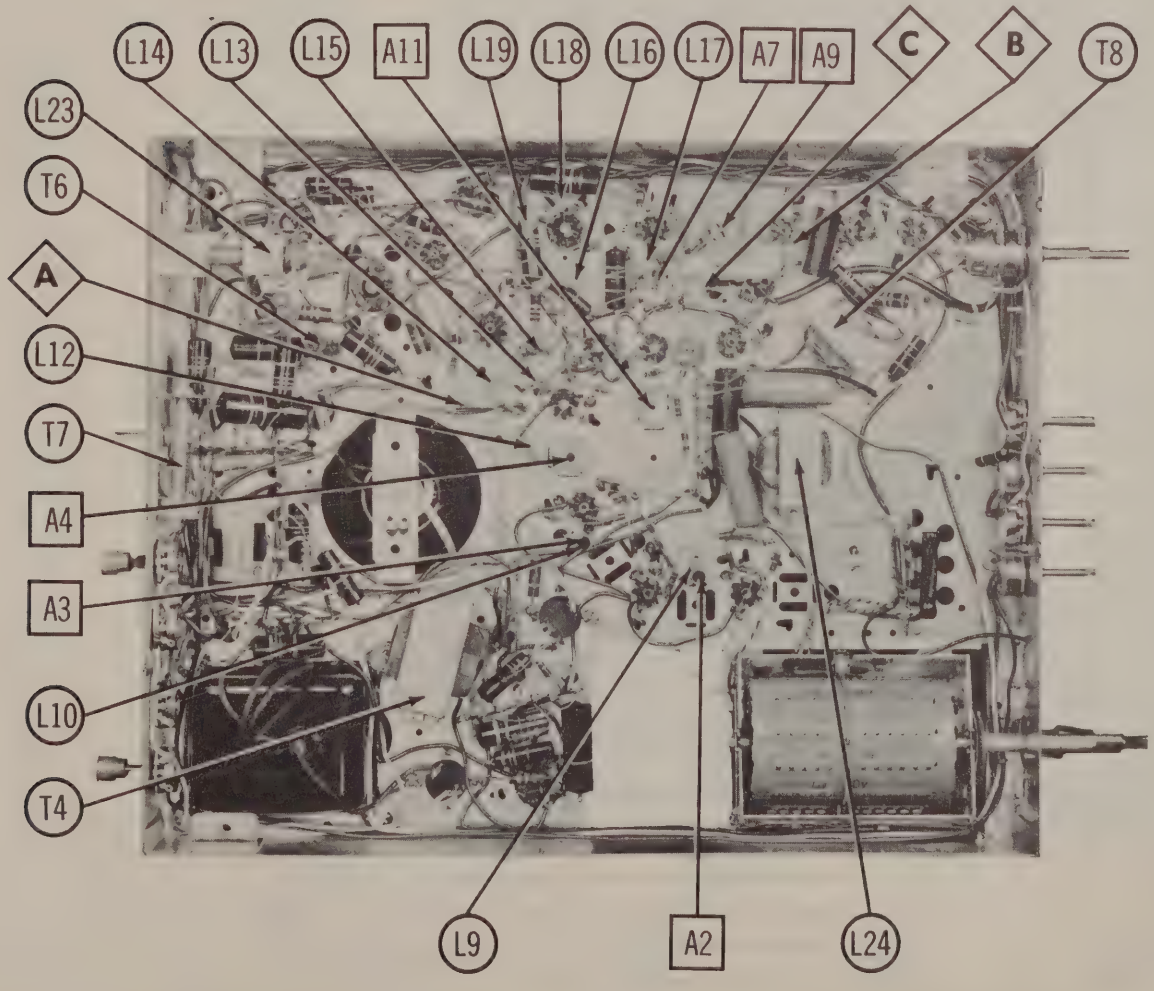
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CORONADO
MODEL TV2-9155A

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

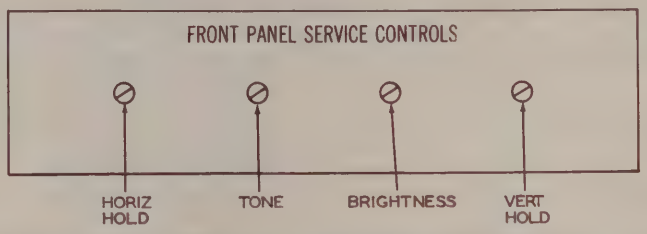
PICTURE TUBE SAFETY GLASS CLEANING

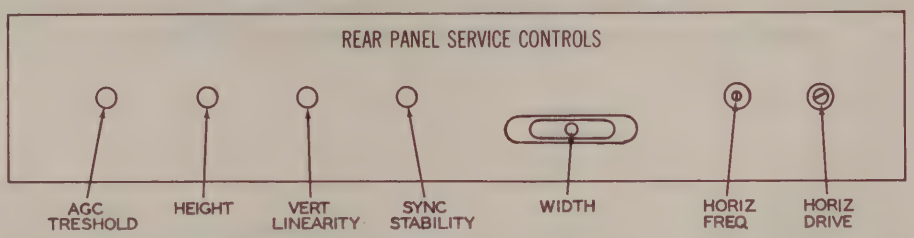
To clean safety glass, remove 4 wood screws holding metal strip at the top front of the cabinet. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION





SPECIAL ADJUSTMENTS - AGC THRESHOLD CONTROL

Tune in the strongest TV station available.

Turn the AGC threshold control clockwise until a buzz in the sound and a washed-out picture appears, then turn the control slightly counter clockwise for clearest picture and best sound.

SYNC STABILITY CONTROL

With the picture locked in slowly turn the sync stability control clockwise until bending occurs at top of picture. Turn control SLIGHTLY counter clockwise until bending disappears. In general, the weaker the signal area the more clockwise the control should be turned.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal frequency slug (L23) until the picture synchronizes horizontally.

SOUND DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L22) located on top of chassis. (See tube placement chart).

FUSES

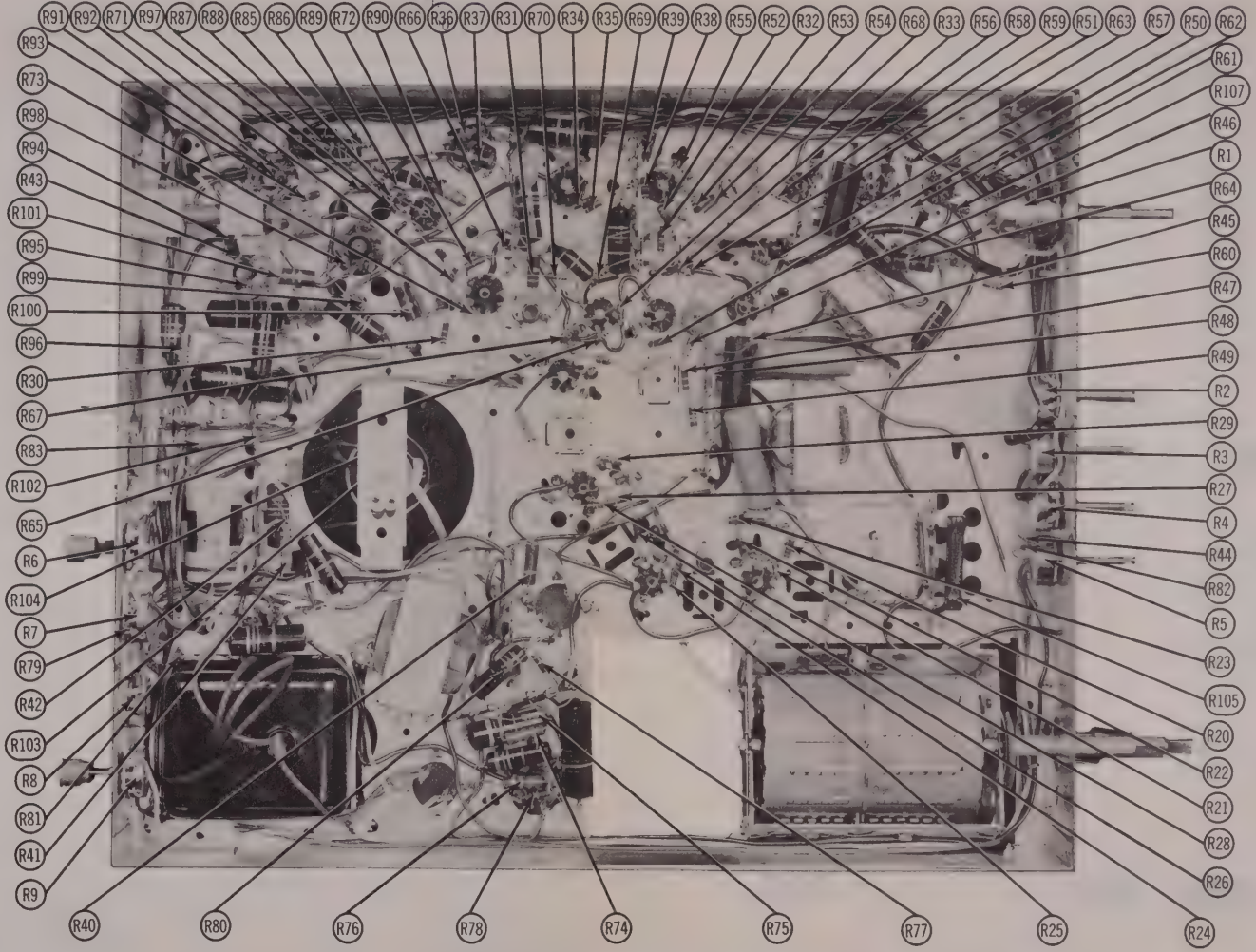
One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push-on type control knobs from front panel.
2. Remove 4 screws from rear cover. Remove rear cover.
3. Loosen 2 screws holding antenna bracket. Remove bracket.
4. Disconnect 2 speaker leads. Remove 4 speaker nuts. Remove speaker.
5. Remove 4 chassis bolts. Remove chassis.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

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CHASSIS RA-321

DUMONT
CHASSIS RA321, RA322

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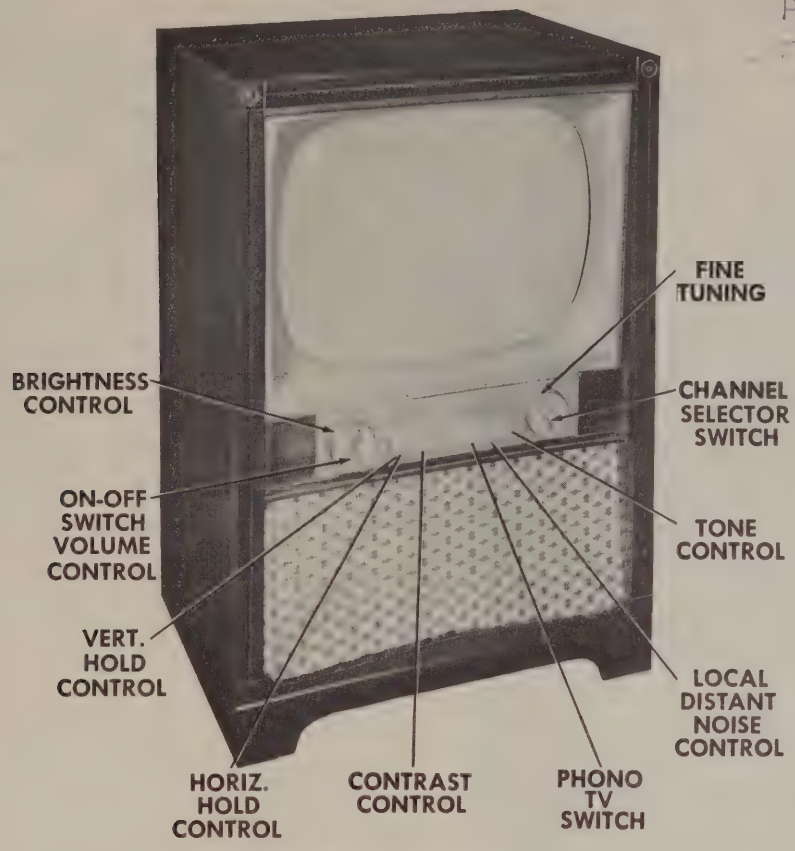

DUMONT CHASSIS RA-321

TRADE NAME	Dumont Chassis RA-321, RA-322
MANUFACTURER	Allen B. Dumont Laboratories, Inc., 257 Sixteenth Ave., Paterson, N.J.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 2.17 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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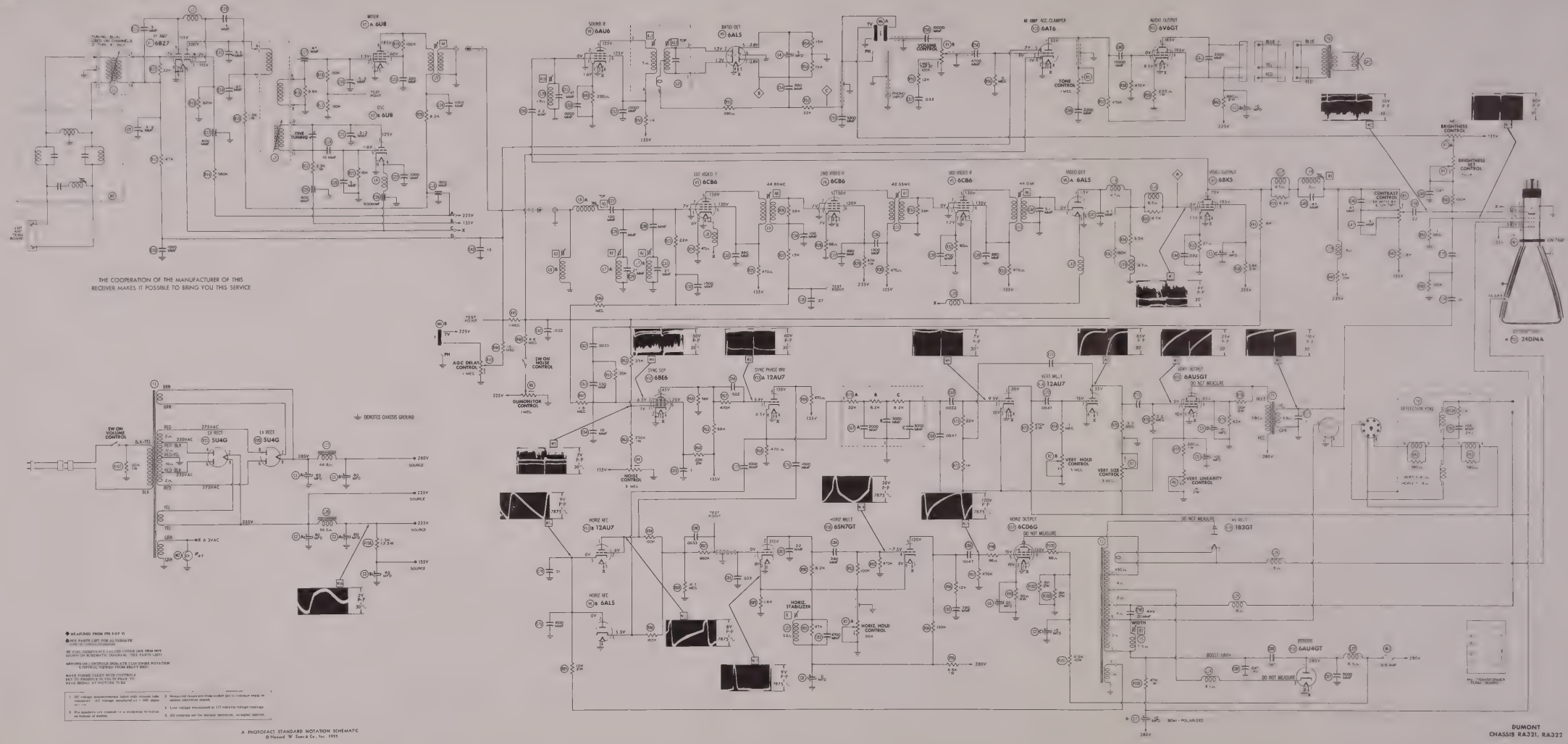
CHASSIS RA321, RA322


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DENOTES CHASSIS GROUND
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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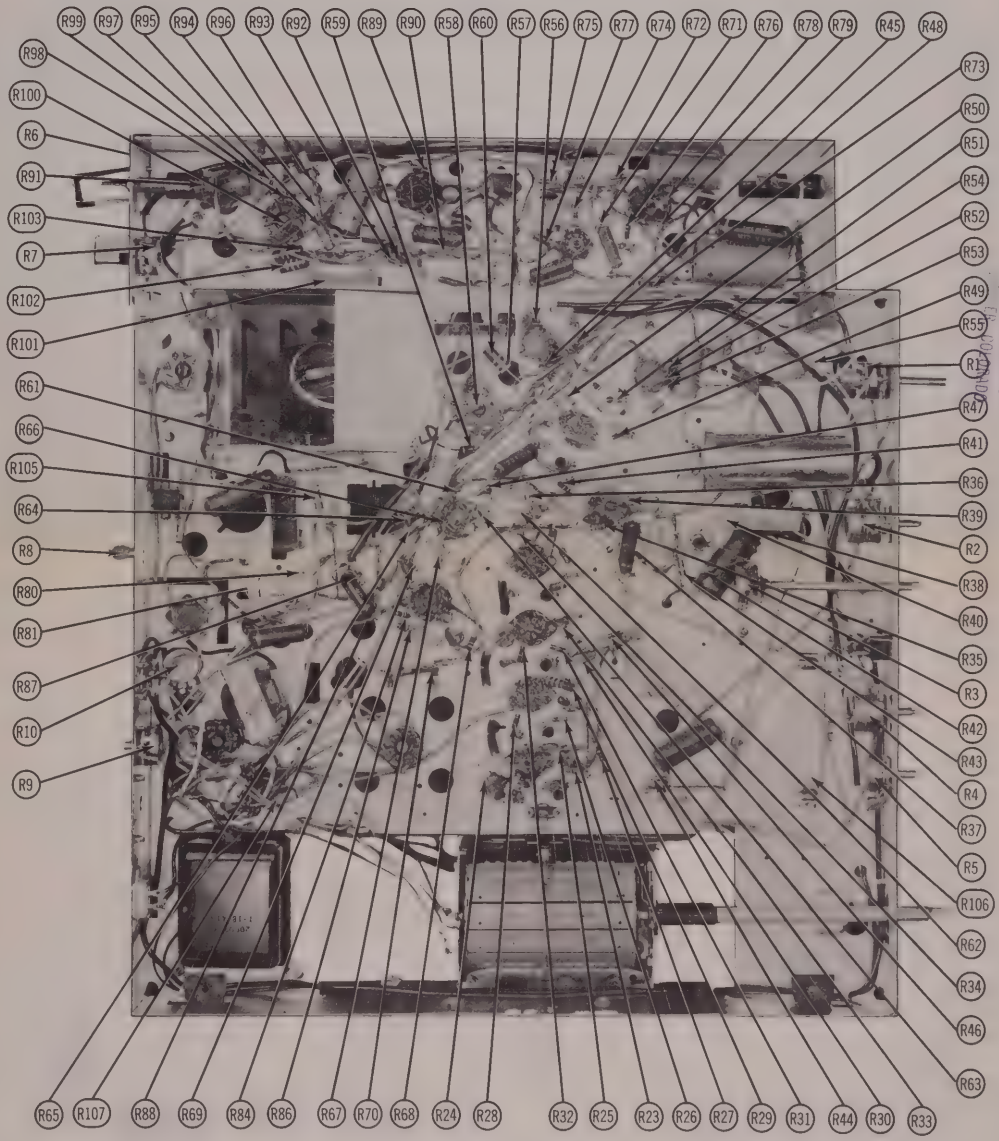
DUMONT
CHASSIS RA321, RA322



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

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ELECTRONICSHOP
3924 MEADE ST.

PROPERTY OF
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3[illegible] MEADE ST.
[illegible] COLORADO

CHASSIS TOP VIEW

DUMONT
CHASSIS RA321, RA322
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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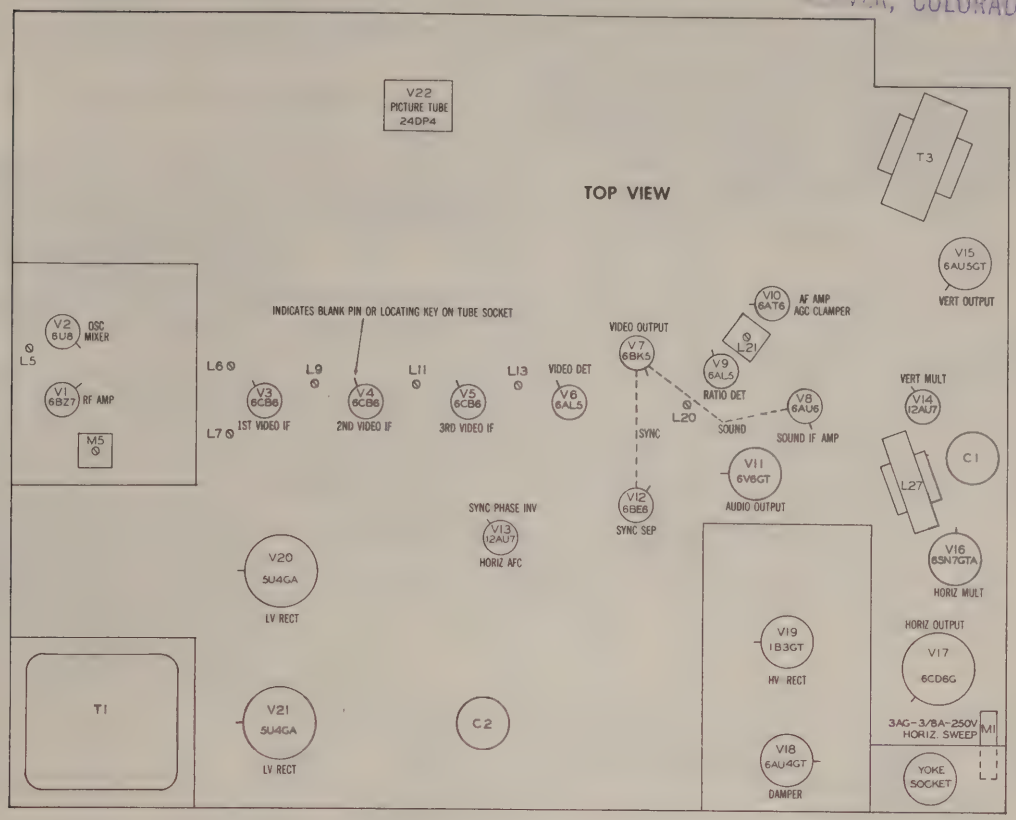
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V20, V21

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V7
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V22
Has pic, no sound - V8, V9, V10, V11
Overloaded picture - V10

SYNC FAILURE
No vert. sync - V13, V14
No horiz. sync - V6, V13, V16
No vert. or horiz. sync - V12, V13

SWEEP FAILURE
No raster, has sound - V16, V17, V18, V19, V22, Fuse (M1)
No vertical deflection - V14, V15
Poor vert. linearity or foldover - V14, V15
Poor horiz. linearity or foldover - V16, V17, V18
Narrow picture - V16, V17, V18, V19, V20, V21
Vert. off freq. - V13, V14
Horiz. off freq. - V6, V13, V16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube (V16) to disable the high voltage. Connect yoke, speaker and picture tube during alignment.

VIDEO IF ALIGNMENT

Place the channel selector switch between any two channels. This will disable the local oscillator and reduce the possiblity of erroneous indications.
Wrap one end of a short length of wire around pin 2 (grid) of the converter tube (V2).
Connect the high side of the signal or sweep generator to the free end.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to pin 2 (grid) of 6U8 (V2). Low side to chassis.	43.5MC (10MC Swp)	41.25MC 42.25MC 45.75MC 47.25MC	Any	Vert. Amp. thru detector (Fig. 1) to pin 5 (plate) of 6CB6 (V3). Low side to chassis.	A1, A2, A3, A4, A5	Use only enough sweep generator output for useable pattern on scope. Adjust A1 thru A5 for response curve similar to Fig. 2. Adjust A1 to place 41.25MC trap marker. A2 places 47.25MC trap marker. A3 places the 42.25MC marker approximately 55% on response curve. Adjust A4 and A5 to place 45.75MC marker at 70% on response curve and for correct tilt. Repeat step 1 until markers are in correct position as in Fig. 2.
2.	"	"	Not used	44.0MC	"	Use VTVM. DC probe to point (A). Common to chassis.	A6	Attenuate generator output to maintain not more than 2 volts at VTVM. Adjust for maximum deflection.
3.	"	"	"	42.35MC	"	"	A7	"
4.	"	"	"	44.85MC	"	"	A8	"
5.	"	"	43.5MC (10MC Swp)	41.25MC 42.25MC 45.75MC 47.25MC	"	Vert. amp. thru 27KΩ to point (A). Low side to chassis.		Connect the negative lead of a 5 volt bias supply to the ungrounded side of C53. Positive lead to chassis. Check for response curve similar to Fig. 3. If necessary, retouch A6, A7 and A8 for desired response. Adjust A7 to place 42.25MC marker at 50% on response curve. Adjust A8 to place 45.75MC marker at 50% on high side of response curve. A1 and A2 places 41.25MC and 47.25MC trap markers. Adjust A6 for MINIMUM dip and tilt. Do not readjust A3, A4 and A5.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to point (A). Low side to chassis.	Not used	4.5MC (400∿Mod)	Any	Vert. Amp. thru detector (Fig. 1) to pin 11 (cathode) of picture tube. Low side to chassis.	A9	Adjust for MINIMUM 400∿ indication on scope.

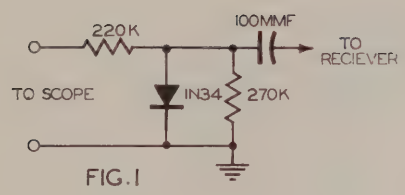


FIG.1

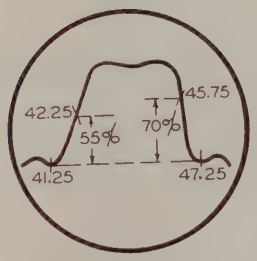


FIG.2

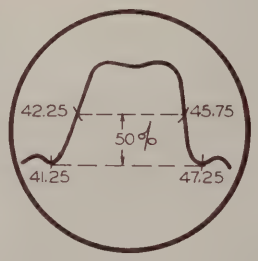


FIG.3

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[illegible], COLORADO

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Direct	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point (B). Low side to chassis.	A10, A11	Disconnect stabilizing capacitor C4. Adjust for curve of maximum amplitude and symmetry similar to Fig. 4.
8.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A12	Reconnect stabilizing capacitor C4. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 5. SLIGHTLY retouch A-11 for maximum amplitude and straightness of crossover lines.

SOUND IF ALIGNMENT USING TV SIGNAL AND VTVM

Disconnect test equipment. Connect antenna to VHF antenna terminals. Tune in a TV station and adjust for best picture.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	Not used	Not used. Tune in a TV signal	Not used	Any station available	DC probe to point (B). Common to chassis.	A10, A11	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point (C). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

VHF OSCILLATOR ALIGNMENT

Place the flat surface of the fine tuning control shaft downward.
The channel oscillator adjustment screws are reached thru a hole just to the left and slightly above the channel switch shaft.
The correct adjustment screw is accessible thru this hole as the channel switch is turned to each channel.
Tune in all available stations in that area and adjust the proper oscillator slug for best sound and picture.

VHF RF AND MIXER ALIGNMENT

The RF and Mixer portion for this receiver has been properly aligned at the factory and is very stable. Alignment of this portion is not recommended in the field.

UHF TUNER ALIGNMENT

Alignment of the UHF tuner should not be attempted in the field. This portion is properly aligned at the factory and is very stable.

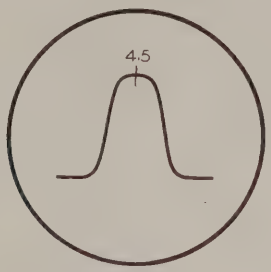


FIG. 4

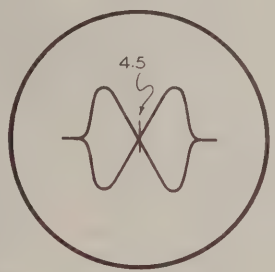
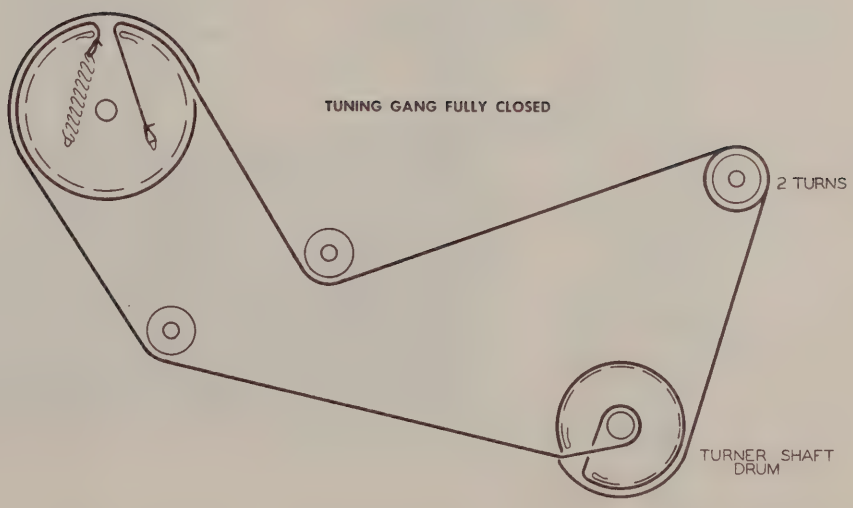


FIG. 5

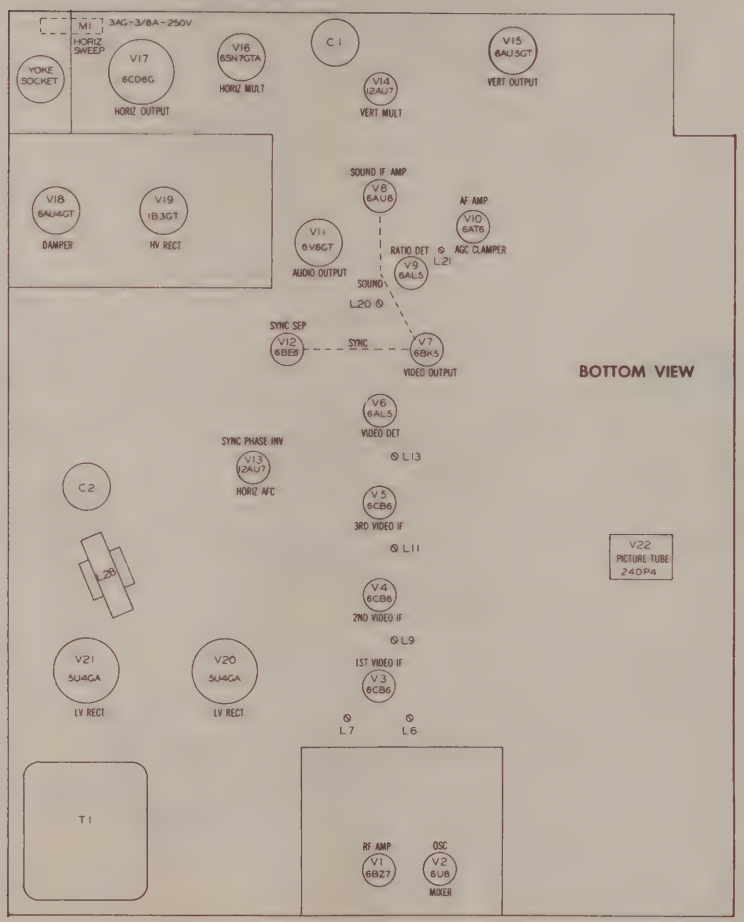


UHF DRIVE CORD STRINGING

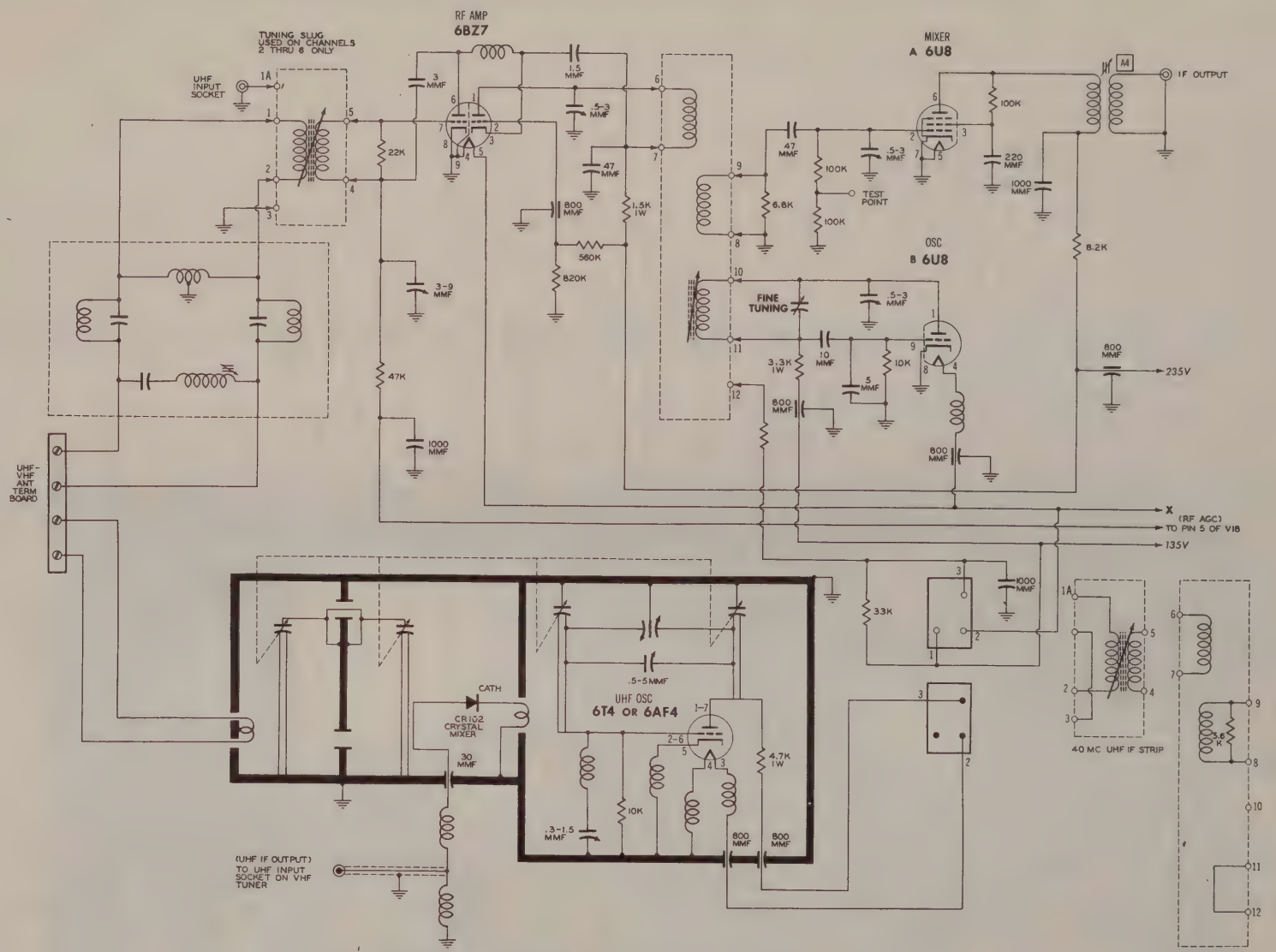
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	†1.5KΩ	350KΩ	INF	0Ω	.1Ω	INF	1.2Meg	0Ω	0Ω
V 2	6U8	†4.6KΩ	200KΩ	†100KΩ	.1Ω	0Ω	†8.2KΩ	0Ω	0Ω	10KΩ
V 3	6CB6	1.2Meg	47Ω	.1Ω	0Ω	†1.8KΩ	†1.8KΩ	0Ω		
V 4	6CB6	1.2Meg	68Ω	.1Ω	0Ω	†1.8KΩ	†47KΩ	0Ω		
V 5	6CB6	.1Ω	180Ω	.1Ω	0Ω	†1.8KΩ	†1.8KΩ	0Ω		
V 6	6AL5	.1Ω	10KΩ	.1Ω	0Ω	4.8Meg	0Ω	3.3KΩ		
V 7	6BK5	†4.2KΩ	NC	3.3KΩ	.1Ω	0Ω	27Ω	3.3KΩ	†5.6KΩ	NC
V 8	6AU6	1.8Ω	0Ω	0Ω	.1Ω	†2.3KΩ	†2.3KΩ	220Ω		
V 9	6AL5	INF	INF	.1Ω	0Ω	15KΩ	0Ω	15KΩ		
V 10	6AT6	10Meg	0Ω	0Ω	.1Ω	1.2Meg	180KΩ	†470KΩ		
V 11	6V6GT	NC	0Ω	†1.1KΩ	†800Ω	470KΩ	NC	.1Ω	220Ω	
V 12	6BE6	135KΩ	0Ω	0Ω	.1Ω	†50KΩ	†25KΩ	2Meg		
V 13	12AU7	4.8Meg	4.8Meg	10KΩ	1Ω	.1Ω	†1.8KΩ	500KΩ	470Ω	0Ω
V 14	12AU7	◓500KΩ	23KΩ	400Ω	.1Ω	.1Ω	◓5Meg	1.5Meg	0Ω	0Ω
V 15	6AU5GT	2.2Meg	.1Ω	400Ω	NC	‡700Ω	NC	0Ω	‡50KΩ	
V 16	6SN7GT	5Meg	‡15KΩ	1.8KΩ	100KΩ	‡160KΩ	1.8KΩ	.1Ω	0Ω	
V 17	6CD6G	NC	0Ω	150Ω	TP	470KΩ	TP	.1Ω	‡4.5KΩ	TOP CAP ◓15Ω
V 18	6AU4GT	NC	NC	15Meg	NC	‡55Ω	NC	.1Ω	0Ω	
V 19	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ◓465Ω
V 20	5U4G	NC	13KΩ	NC	12Ω	NC	12Ω	NC	13KΩ	
V 21	5U4G	NC	40KΩ	NC	10Ω	NC	10Ω	NC	40KΩ	
V 22	24DP4A	0Ω	1Meg	PIN 6 †1.3KΩ	PIN 10 ◓47KΩ	PIN 11 650KΩ	PIN 12 .1Ω			

† MEASURED FROM PIN 2 OF V21.
◓ MEASURED FROM PIN 3 OF V18
‡ MEASURED FROM PIN 8 OF V20
NC - NO CONNECTION
TP - TIE POINT



TUBE PLACEMENT CHART



UHF TUNER 89013451 AND VHF TUNER 89013471 USED WITH SOME VERSIONS

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALTERNATE UHF-VHF TUNER SCHEMATIC

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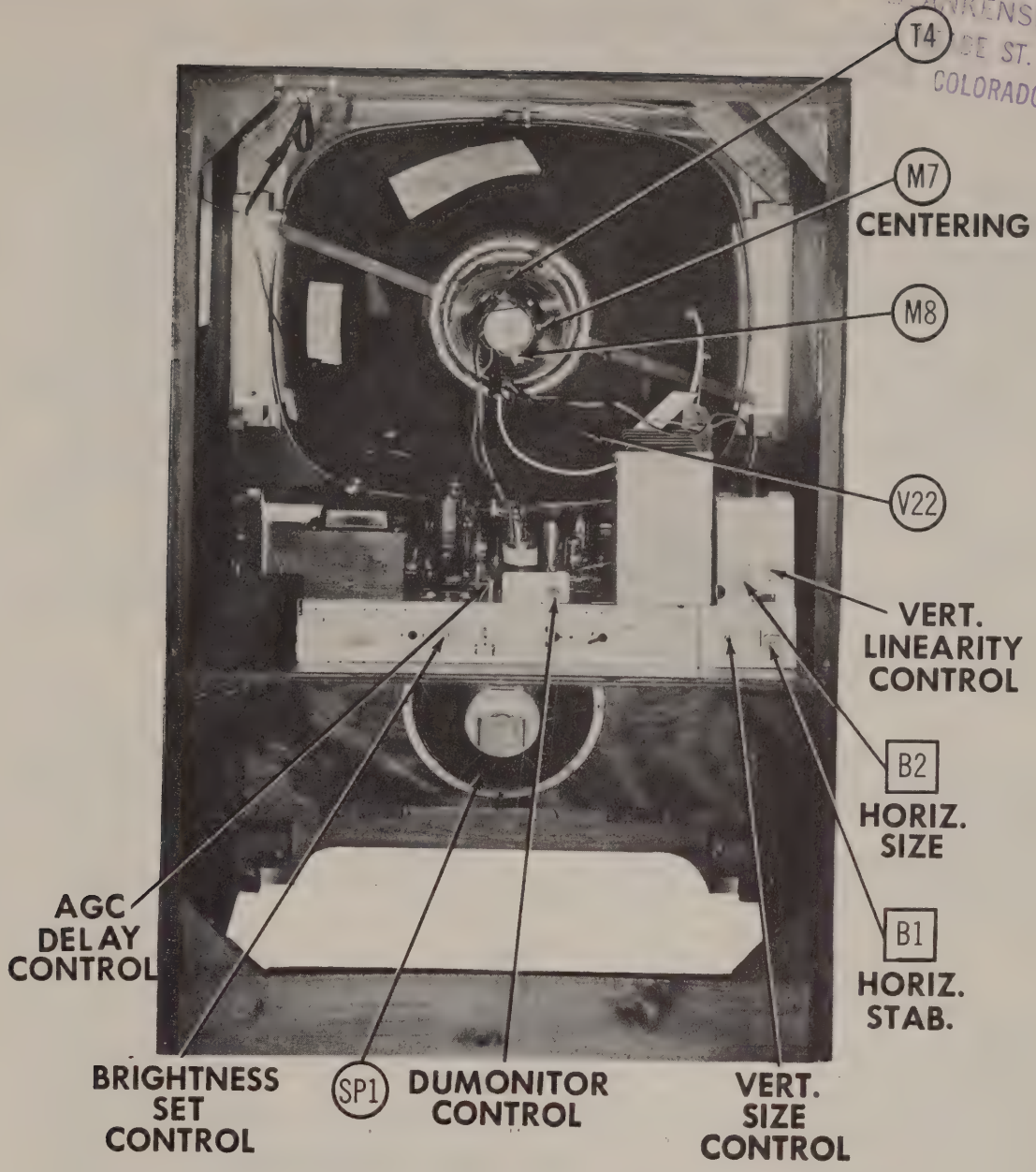

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control to its mid-range position.

Adjust the horizontal stabilizer slug (B1) to the center of its effective synchronizing range, then momentarily remove signal by switching off channel and back again. Picture should pull into sync. If picture does not pull into sync, readjust B1 slightly until picture pulls into sync.

Adjust the horizontal width slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V17, V18, V20 and V21. Check adjustment B2. Check C85, C86, R96, R101, T2, T4A and other associated components.

DRIVE LINES

Check by substitution V17 and V18. Check C85, C86, R96, R101, R102, R103 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V17 and V18. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V16, V17 and V18. Check C81 for open. Check L22, R91, C80, C82 and other associated components.

XMAS TREE EFFECT

Check by substitution V16, V17 and V18. Check T2 and T4 for internal arcing. Check C78, C79, C82, L22, R85 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V14 and V15. Check waveform W8.

If Satisfactory	If Unsatisfactory
Check T3, T4B, R78, C3D and other associated components.	Check C69, C70, C72, R73, R74, R75, R7 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V14 and V15. Check vertical size and vertical linearity controls for proper operation. Check R75, T3 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V14 and V15. Check R7, R75, R73, C72 and other associated components.

COMPRESSED AT TOP

Check by substitution V14 and V15. Check R77, R6, C5, T3 and other associated components.

FOLDS

Check by substitution V14 and V15. Check C71, C72, R72, T3, T4B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V12 and V13. Check C62, C63, C66, R64, R65, R69 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V14. Check vertical integrator network. Check R73, R74, R2B, C70 and other associated components.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V13, V6 and V16. Check C76, C77, C80, C81, R90, L22 and other associated components.

HORIZONTAL BENDING

Check by substitution V6, V12, V13 andV16. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V7. Check C45, C48, C3C, L15, L19, R40, R42, R38 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A9. Check video IF alignment.

POOR CONTRAST

Substitute V7. Check contrast control. Check C48, C46, C47, R37, L14, L16 and other associated components.

NEGATIVE PICTURE

Substitute V7. Check picture tube. Check C48 and other associated components.

SMEAR

Substitute V7. Check L14, L15, L16, L17, C48 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C56, C58, C60, C61, C2B, R57, R59, R60, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A12 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, check by substitution V20 and V21. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check by substitution V20 and V21. Check B+ filter and decoupling network.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		DUMONT PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BZ7	6BZ7	9AJ	
V2	Mixer-Osc.	6U8	6U8	9AE	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector-Horiz. AFC	6AL5	6AL5	6BT	
V7	Video Output	6BK5	6BK5	9BQ	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Det.	6AL5	6AL5	6BT	
V10	AF Amp.-AGC Clamper	6AT6	6AT6	7BT	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	Sync Separator	6BE6	6BE6	7CH	
V13	Sync Phase Inv.-Horiz. AFC	12AU7	12AU7	9A	
V14	Vert. Mult.	12AU7	12AU7	9A	
V15	Vert. Output	6AU5GT	6AU5GT	6CK	
V16	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V17	Horiz. Output	6CD6G	6CD6G	5BT	
V18	Damper	6AU4GT	6AU4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21	LV Rectifier	5U4G	5U4G	5T	

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CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	DUMONT PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V22	24DP4A ①	24DP4A ①	24DP4A ①	24DP4A② 24DP4	24DP4A ① 24DP4	12L 12L	① Aluminized ② Silver Screen

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	DUMONT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲80	400	03151423			FP229.3	TM-D80-450	Q-085	
B	▲80	400							
C2A	■80	350	03151427			FP450	TM-3133	T-165 FM-4710	
B	▲10	350							
C	▲10	500							
D	10	50							Note 1
C3A	▲80	350	03151425			FP449	TM-4044	Q-087	
B	■40	350				TC78	TD-30-350	FM-4540	
C	4	350							
D	▲10	350							
C4	5	100	03138362			TC40	TD-8-150	MMT-1505	
C5	100	50	03138770			TC3501	TD-100-50	MTH-5010	
C6	25	50	03138760			TC36	TD-25-50	FM-0525	
C7	10	350	03250421						Note 2
C8	10	400	03138363			TC72	TD-10-450	FM-4510	
C9	3-9		03119160	829-10					
C10	1000		03100490	DD-102	801-001	DC-521			
C11	3		03123020	TCZ-3	NP0A-030	ZT-5533			
C12	.5-3		03119150	829-3	3115-01-0R5	CT565A			
C13	800		03125500						
C14	47		03119170	DD-470	831-470	UC-5447			
C15	1.5		03123030	TCZ-1R5	NP0A-1R5	ZT-5515			
C16	800		03125500						
C17	47		03160041	MFT-500					
C18	.5-3		03119150	829-3	3115-01-0R5	CT565A			
C19	10		03126010	TCN-10	N750K-100	NT-541			
C20	5		03123010						
C21	.5-3		03119150	829-3	3115-01-0R5	CT565A			
C22	1000		03100490	DD-102	801-001	DC-521			
C23	220		03154580	DD-221	811-221	UC-5322			
C24	1000		03100490	DD-102	801-001	DC-521			
C25	800		03125500						
C26	800		03125500						
C27	100		03151900	D6-101	GP1K-101	UC-531		K-1310	
C28	1		03133830	TCZ-1	NP0A-010				
C29	27		03151520	TCZ-27	NP0K-270			KR-1427	
C30	1		03133830	TCZ-1	NP0A-010				
C31	27		03151520	TCZ-27	NP0K-270			KR-1427	
C32	1500		03153710	DD-152	801-0015	DC-5215		C-1215	
C33	680		03151960	D6-681	GP2K-681	UC-5368		K-1368	
C34	100		03151900	D6-101	GP1K-101	UC-531		K-1310	
C35	.27	200	03140170						
C36	1500		03153710	DD-152	801-0015	DC-5215		C-1215	
C37	680		03151960	D6-681	GP2K-681	UC-5368		K-1368	
C38	680		03151960	D6-681	GP2K-681	UC-5368		K-1368	
C39	4700		02153740	DD-472	811-0047	DC-525		C-1247	
C40	5.1		03153180	TCZ-4R7	NP0A-4R7	ZT-555		KR-1550	
C41	4.7		03146750	TCZ-4R7	NP0A-4R7	ZT-555		KR-1550	
C42	.022	200	03140320	DF-203	817-02	PT4122	IMP4-S22	3304122	
C43	.15	200	03140370			PT4015	IMP4-P15	3304015	
C44	.022	200	03140320	DF-203	817-02	PT4122	IMP4-S22	3304122	
C45	47		03151550	TCZ-47	NP0-338-470	ZT-5447		KR-1447	
C46	47		03151550	TCZ-47	NP0-338-470	ZT-5447		KR-1447	
C47	15		03133010	D6-150	GP1K-150	UC-5415		K-1415	
C48	.22	400	03141140			PT4022	IMP4-P22	3304022	
C49	.047	400	03141100	DF-503		PT4147	IMP4-S47	3304147	
C50	2.2		03152490	TCZ-2R2	NP0A-2R2				
C51	47		03151550	TCZ-47	NP0-338-470	ZT-5447		KR-1447	
C52	10000		03015920	DD-103	811-01	DC-511			
C53	10000		03015920	DD-103	811-01	DC-511			
C54	680		03151960	D6-681	GP2K-681	UC-5368		K-1368	
C55	3300		03153730	DD-332	811-0033	UC-5233		C-1233	
C56	10000		03015920	DD-103	811-01	DC-511	IMP6-S1	330611	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA DUMONT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C57	.033	200	03140330	DF-303		PT4133	IMP6-S3	3306133	
C58	4700		03153740	DD-472	811-0047	DC-525	IMP6-D47	C-1247	
C59	2200		03153820	DD-222	811-0022	UC-5222	IMP6-D22	C-1222	
C60	10000		03015920	DD-103	811-01	DC-511	IMP6-S1	330611	
C61	3300		03153730	DD-332	811-0033	UC-5233	IMP6-D33	C-1233	
C62	.0033	400	03141030	D6-332	GP2-333-332	PT6233	IMP6-D33	3306233	
C63	330		03151930	D6-331	GP2K-331	UC-5333		K-1330	
C64	10		03146790	TCZ-10	NP0K-100	ZT-541		KR-1410	
C65	.1	400	03141120	DF-104		PT401	IMP4-P1	330401	
C66	.022	200	03140320	DF-203	817-02	PT4122	IMP4-S22	3304122	
C67A	2000					PT622	IMP6-D2	330622	
B	5000		♦88000631	♦PC-100	♦1405-01	PT625	IMP6-D5	330625	
C	5000					PT625	IMP6-D5	330625	
C68	.0047	400	03140580	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C69	.0022	600	03140540	D6-222	GP2-333-222	PT6222	IMP6-D22	3306222	
C70	.0047	400	03140580			MCB465		CR-1247	
C71	.1	600	03141540						
C72	.1	600	03141820	DF-104		PT601	IMP6-P1	330601	
C73	.1	200	03140360	DF-104		PT401	IMP2-P1	330201	
C74	.01	600	03141760	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C75	.1	200	03140360	DF-104		PT401	IMP2-P1	330201	
C76	1000		03153800	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C77	1000		03153800	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C78	.01	400	03141060	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C79	1000		03153700	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C80	.0033	600	03141030	D6-332	GP2-333-332	PT6233	IMP6-D33	3306233	
C81	.033	200	03140330	DF-303		PT4133	IMP6-S3	3306133	
C82	4700	500	03033340			MCE465		CR-1247	
C83	22		03133020	D6-220	GP1K-220	UC-5422		K-1422	
C84	390	500	03021110			MCE243		KR-1339	
C85	390	500	03020500			MCB243		KR-1339	
C86	.0047	600	03141740	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	
C87	5000		03153750	DD-502	811-005	DC-525		C-1250	
C88	.047	600	03141500	DF-503		PT6147	IMP6-S47	3306147	
C89	.047	1000	03139684			PT1615	CT10-S5	2110-.05	
C90	120	4000	02122463	DD60-121				K-4312	
C91	105	2000	03122462						

Note 1. C2D not used.
Note 2. Semi-polarized unit.
♦ Items C67A, C67B, C67C, R70A, R70B and R70C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	D1058341	*QJ-725		F1-51	UF16L	Brightness - Panel
B	1Meg	½				R2-61	UR16-T1253†	Volume-tapped ⓐ 100KΩ-rear
C	Switch					KB-1	US-26	Attach to R1B
R2A	50KΩ	½	D1058331-1	**QJ-724		F1-29	UF54L ††	Horiz. Hold-Panel
B	1.5Meg	½				R2-64	UR26L	Vert. Hold-Rear
R3A	15KΩ	½	D1054571-3	Q13-118XX		ABT-154		Contrast-tapped ⓐ 6KΩ and 12KΩ
B	Shaft		Not Req.	Not Req.		AK-4		Attach to R3A
R4A	3Meg	½	D1054591	Q11-140	A47-3Meg-S	AB-84	U-59	Noise
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R4A
R5A	1Meg	½	D1056034-3	Q13-137	A47-1Meg-Z	AB-70	U-53	Tone
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	1000Ω	2	D1024730	WK-1000	A43-1000	VK-129	R1000L	Vert. Linearity- wire-wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R6A
R7A	3Meg	½	D1056041-4	Q11-140	A47-3Meg-S	BX-84	SU-59	Vert. Size
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R7A
R8A	1Meg	½	D1056035	Q11-137	A47-1Meg-S	BX-69	SU-54	Dumonitor
B	Shaft		Not Req.	SQ	FKS-1/4	Not Req.	Not Req.	Attach to R8A
R9A	500KΩ	½	D1056042	Q11-133	A47-500K-S	BX-59	SU-50	Brightness Set
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R9A
R10A	1Meg	½	D1056035-3	Q11-137	A47-1Meg-S	AB-69	U-54	AGC Delay
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R10A

† Universal Replacement (Mallory Exact duplicate part No. UE1687S).
†† Universal Replacement (Mallory Exact Duplicate part #UE1045).
* CONCENTRIKIT EQUIVALENT: K-2 KIT, BASE ELEMENTS & SHAFTS: B11-137 & P6-102 (Panel)
B17-137X & R1-118 (Rear)
76-1 SWITCH
** CONCENTRIKIT EQUIVALENT: K-5 KIT, BASE ELEMENTS & SHAFTS: B11-123 & P1-024 (Panel)
B11-138 & R11-031 (Rear)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	NOTES
R11	22KΩ	½	02031930	BTS-22K	
R12	47KΩ	½	02031970	BTS-47K	
R13	820KΩ	½	02032120	BTS-820K	
R14	560KΩ	½	02032100	BTS-560K	
R15	1500Ω	1	02034790	BTA-1500	
R16	6800Ω	½	02031870	BTS-6800	
R17	100KΩ	½	02032010	BTS-100K	
R18	100KΩ	½	02032010	BTS-100K	
R19	100KΩ	½	02032010	BTS-100K	
R20	8200Ω	½	02031880	BTS-8200	
R21	10KΩ	½	02031890	BTS-10K	
R22	3300Ω	1	02034830	BTA-3300	
R23	22KΩ	½	02041930	BTS-22K	
R24	47Ω	½	02031610	BTS-47	
R25	470Ω	½	02032400	BTS-470	
R26	56KΩ	½	02031980	BTS-56K	
R27	15KΩ	½	02032490	BTS-15K	
R28	68Ω	½	02031630	BTS-68	
R29	47KΩ	1	02034970	BTA-47K	
R30	470Ω	½	02032400	BTS-470	
R31	56KΩ	½	02031980	BTS-56K	
R32	180Ω	½	02031680	BTS-180	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	NOTES
R33	470Ω	½	02032400	BTS-470	
R34	3300Ω	½	02031803	BTS-3300	
R35	4700Ω	½	02031850	BTS-4700	
R36	180KΩ 5%	½	02031020	BTS-180K 5%	
R37	27Ω	½	02031580	BTS-27	
R38	5600Ω	2	02037860	BTB-5600	
R39	8200Ω	½	02031880	BTS-8200	
R40	50000Ω	10	02113070	PW10-5000	
R41	18KΩ	½	02031920	BTS-18K	
R42	1800Ω	½	02031800	BTS-1800	
R43	100KΩ	½	02032540	BTS-100K	
R44	15Meg	½	02032270	BTS-15Meg	
R45	1Meg	½	02032130	BTS-1Meg	
R46	1Meg	½	02042600	BTS-1Meg	
R47	1.8Meg 5%	½	02031260	BTS-1.8Meg 5%	
R48	6.8Meg 5%	1	02032230	BTS-6.8Meg 5%	
R49	220Ω	½	02031690	BTS-220	
R50	1000Ω	½	02032420	BTS-1000	
R51	390Ω	½	02031720	BTS-390	
R52	22KΩ	½	02041930	BTS-22K	

PARTS LIST AND DESCR

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA DUMONT PART No.	IRC PART No.	NOTES
R53	15KΩ	½	02031910	BTS-15K	
R54	15KΩ	½	02031910	BTS-15K	
R55	12KΩ	½	02031900	BTS-12K	
R56	10Meg	½	02032660	BTS-10Meg	
R57	470KΩ	½	02032580	BTS-470K	
R58	470KΩ	½	02032580	BTS-470K	
R59	220Ω	1	02034690	BTA-220	
R60	680Ω	2	02038410	BTB-680	
R61	120KΩ	½	02032020	BTS-120K	
R62	33KΩ	½	02031950	BTS-33K	
R63	330KΩ	1	02032070	BTA-330K	
R64	22KΩ	2	02037930	BTB-22K	
R65	68KΩ	½	02031990	BTS-68K	
R66	56KΩ	½	02031980	BTS-56K	
R67	470KΩ	½	02032090	BTS-470K	
R68	470Ω	½	02031730	BTS-470	
R69	470Ω	½	02031730	BTS-470	
R70A	22KΩ	½		BTS-22K	
B	8200Ω	½	♦88000631	BTS-8200	
C	8200Ω	½		BTS-8200	
R71	22KΩ	½	02041930	BTS-22K	
R72	1000Ω 5%	½	02030480	BTS-1000 5%	
R73	470KΩ	2	02038090	BTB-470K	
R74	1Meg 5%	½	02031200	BTS-1Meg 5%	
R75	3.3Meg	½	02032190	BTS-3.3Meg	
R76	2.2Meg	½	02032620	BTS-2.2Meg	
R77	220Ω	1	02034690	BTA-220	
R78	100KΩ	2	02038010	BTB-100K	

♦ Items R70A, R70B, R70C, C67A, C67B, C

TRANSFORMER

ITEM No	RATING PRI	RATING SEC. 1	RATING SEC. 2	DUMONT PART No.	Halldorson PART No.
T1	117VAC ⓐ 2.17A	550VCT .174ADC tap ⓐ 468VCT .166ADC	5VAC ⓐ 3A	20009071	
	SEC. 3	SEC. 4	SEC. 5		
	5VAC ⓐ 3A	6.3VAC ⓐ 12A			

TRANSFORMERS (SV

ITEM No.	USE	DUMONT PART No.	Halldorson PART No.	Merit PART No.
T2	Horiz. Output Trans.	20009091	FB419 & RF800 *	
T3	Vert. Output Trans.	20008711	Z1800①	A-3035①
T4A	Yoke (90°) Horiz. (11MH) Vert. (40MH)	89013333	DF606②	MDF-91
T5	Width Coil (2.7-17MH)	21011601		MWC-6

① Drill new mounting hole(s).
② Connect horizontal yoke damping network across terminals #3 an
③ Use original yoke damping network.
④ Connect to coded blue and red terminals.

*HORIZONTAL OUTPUT TRANSF

Use Original Width Coil Unless

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections
	9	9		9
	7	7		7
	5	5		5
	T	3		3
	3	1		1
	6	Term. #3 of RF800		Term. "E" of 214R1
	2	Term. #4 of RF800		Term. "D" of 214R1
Connect Width Coil Across →	T & 3	Term. #1 & #2 of RF800 across 3 & 1		Term. "A" & "B" of 214R1 across 3 & 1
Special Notes →		⑤		⑤

⑤ If the picture is out of phase, reverse width coil

TRANSFORMER (AU

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA DUMONT PART No.	Halldorson PART No.	Merit PART No.	Stanc PART N
T6	6KΩ	4Ω	Part of Spkr.	Z1113	A-2930	A-387

PROPERTY OF
L. F. HAWKINSHIP
[illegible] ST.
DENVER, COLORADO

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	DUMONT Part No.	CENTRALAB Part No.	ERIE Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	NOTES
			REPLACEMENT DATA						
C57	.033	200	03140230	DP-303		PT4133	IMPS-S3	3306133	
C58	4700		03153760	DD-472	811-0047	DC-535	IMPS-D47	C-1247	
C59	2200		03153930	DD-222	811-0022	UC-5222	IMPS-D22	C-1222	
C60	10000		03015920	DD-103	811-01	DC-511	IMPS-S1	330611	
C61	3300		03153730	DD-332	811-0033	UC-5233	IMPS-D33	C 1233	
C62	.0033	400	03140300	DS-332	GP2-333-332	PT6233	IMPS-D33	3306233	
C63	330		03153930	DS-331	GP1K-331	UC-5333		K-1330	
C64	10		02146790	TCZ-10	NP0K-100	ZT-341		KH-1410	
C65	.1	400	03141120	DP-104		PT141	IMP4-P1	330401	
C66	.033	200	03140230	DP-303	817-03	PT4133	IMP4-S33	330433	
C67A	2000					PT622	IMP6-D2	330622	
B	5000		#88000631	#PC-100	#1401-01	PT625	IMP6-D5	330625	
C	8000					PT635	IMP6-D8	330628	
C68	.0047	400	03140580	DS-472	GP3-333-472	PT6247	IMP8-D47	3306247	
C69	.0022	600	03140549	DS-222	GP3-333-222	PT6222	IMP8-D22	3306222	
C70	.0047	400	03140580			MCB465		CR-1247	
C71	.1	600	03141540						
C72	.1	600	03141820	DF-104		PT601	IMP8-P1	330601	
C73	.1	200	03140260	DF-104		PT401	IMP2-P1	330201	
C74	.01	600	03141760	DD-103	GP2-333-103	PT601	IMP6-S1	330611	
C75	.1	200	03140360	DF-104		PT401	IMP2-P1	330201	
C76	1000		03153800	DD-102	811-001	DC-511	IMP6-D1	K-1210	
C77	1000		03153800	DD-102	811-001	DC-511	IMP8-D1	K-1210	
C78	.01	400	03141060	DS-103	GP2-333-103	PT41	IMP4-S1	330411	
C79	1000		03153760	DD-102	811-001	DC-511	IMP6-D1	K-1210	
C80	.0033	600	03141030	DS-332	GP2 333-332	PT6233	IMP6-D33	3306233	
C81	.033	200	03140330	DF-303		PT4133	IMP6-S3	3306133	
C82	4700	500	03203240			MCE465		CR-1247	
C83	22		03153020	DS-220	GP1K-220	UC-5422		K-1422	
C84	390	500	03021100			MCE343		KH-1339	
C85	390	600	03029500			MCB343		KH-1339	
C86	.0047	800	03141740	DS-472	GP3-333-472	PT6247	IMP8-D47	3306247	
C87	5000		03153755	DD-502	811-005	DC-525		C-1250	
C88	.047	600	03141500	DP-503		PT6347	IMP8-S47	3306147	
C89	.047	1000	03139664			PT1615	CY10-S5	X10-.05	
C90	120	4000	02122463	DD60-121				K-1429	
C91	105	2000	03122462						

Note 1. C4D not used.
Note 2. Semi-polarized unit.
* Items C67A, C67B, C67C, R70A, R70B and R70C are combined in one unit.

CONTROLS

ITEM No	RATING RESIST-ANCE	RATING WATTS	DUMONT Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
			REPLACEMENT DATA					
R1A	1Meg		D1058341	*QJ-725		FI-51	UF16L	Brightness - Panel
B	1Meg					R2-61	UR16-Y1253 †	Volume-tapped @ 100KΩ-rear
C	Switch					KB-1	UB-28	Attach to R1B
R2A	500KΩ		D1058331-1	**QJ-724		FI-59	UF24L) ††	Horiz. Hold-Panel
B	1.5Meg					R2-64	UR36L) ††	Vert. Hold-Rear
R3A	15KΩ		D1054571-3	QJ3-15KX		A87-134		Contrast-tapped @ 6KΩ and 12KΩ
B	Shaft		Not Req.	Not Req.		AK-4		Attach to R3A
R4A	1Meg	½	D1054581	QJ1-140	A47-134eg-S	AB-84	U-59	Noise
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
C	Switch		Not Req.	Not Req.	SWS-12	KB-28	UB-28	Attach to R4A
R5A	1Meg	½	D1056034-3	QJ3-137	A47-134eg-Z	AB-70	U-53	Tone
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	1000Ω	2	D1024730	WK-1000	A43-1000	WK-1000	R100GL	Vert. Linearity- wire-wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R6A
R7A	1Meg	½	D1058041-4	QJ1-140	A47-134eg-S	BX-84	U-59	Vert. Size
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R7A
R8A	1Meg	½	D1056035	QJ1-137	A47-134eg-S	BX-59	SU-59	Dumonitor
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R8A
R9A	500KΩ	½	D1056042	QJ1-133	A47-500K-S	BX-59	SU-59	Brightness Set
B	Shaft		Not Req.	RQ	FKS-1/4	Not Req.	Not Req.	Attach to R9A
R10A	1Meg	½	D1056035-3	QJ1-137	A47-134eg-S	AB-69	U-54	AGC Delay
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R10A

† Universal Replacement (Mallory Exact duplicate part No UE16E78).
†† Universal Replacement (Mallory Exact Duplicate part #UE1645).
* CONCENTRIKIT EQUIVALENT: K-2 KIT, BASE ELEMENTS & SHAFTS: B11-137 & P8-102 (Panel)
B11-137K & R1-18 (Rear)
T6-1 SWITCH
** CONCENTRIKIT EQUIVALENT: K-5 KIT, BASE ELEMENTS & SHAFTS: B11-133 & P1-024 (Panel)
B11-138 & R11-031 (Rear)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	DUMONT Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R11	22KΩ	½	03031930	BTS-22K	
R12	47KΩ	½	03031970	BTS-47K	
R13	820KΩ	½	03032120	BTS-820K	
R14	560KΩ	½	03032100	BTS-560K	
R15	1500Ω	½	03031790	BTA-1500	
R16	6800Ω	½	03031870	BTS-6800	
R17	100KΩ	½	03031950	BTS-100K	
R18	100KΩ	½	03032010	BTS-100K	
R19	100KΩ	½	03032010	BTS-100K	
R20	8200Ω	½	03031890	BTS-8200	
R21	10KΩ	½	03031890	BTS-10K	
R22	33000Ω	½	03034850	BTA-33000	
R23	22KΩ	½	03041830	BTS-22K	
R24	47Ω	½	03031810	BTS-47	
R25	4700Ω	½	03032490	BTS-470	
R26	56KΩ	½	03031960	BTS-56K	
R27	15KΩ	½	03032490	BTS-15K	
R28	68Ω	½	03031630	BTS-68	
R29	47KΩ	½	03034970	BTA-47K	
R30	4700Ω	½	03032400	BTS-470	
R31	56KΩ	½	03031980	BTS-56K	
R32	180Ω	½	03031880	BTS-180	
R33	470Ω	½	03032440	BTS-470	
R34	4700Ω	½	03031803	BTS 3300	
R35	4700Ω	½	03031850	BTS-4700	
R36	180KΩ	½	03031910	BTS-180K 5%	
R37	27Ω	½	03031560	BTS-27	
R38	39000Ω	½	03031880	BTS-3900	
R39	8200Ω	½	03031880	BTS-8200	
R40	5000Ω	10	02130370	PW10-5000	
R41	18KΩ	½	03031870	BTS-18K	
R42	1800Ω	½	03031800	BTS-1800	
R43	100KΩ	½	03031940	BTS-100K	
R44	15Meg	½	03033270	BTS-15Meg	
R45	1Meg	½	03032130	BTS-1Meg	
R46	1Meg	½	03042900	BTS-1Meg	
R47	1.8Meg	½	03031260	BTS-1.8Meg 5%	
R48	6.8Meg	½	03032330	BTS-6.8Meg 5%	
R49	220Ω	½	03031690	BTS-220	
R50	1000Ω	½	03032420	BTS-1000	
R51	390Ω	½	03031720	BTS-390	
R52	22KΩ	½	03041830	BTS-22K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	DUMONT Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R53	15KΩ	½	03031890	BTS-15K	
R54	15KΩ	½	03031910	BTS-15K	
R55	12KΩ	½	03031900	BTS-12K	
R56	10Meg	½	03032660	BTS-10Meg	
R57	470KΩ	½	03032580	BTS-470K	
R58	470KΩ	½	03032580	BTS-470K	
R59	220Ω	1	02034690	BTA-220	
R60	68Ω	2	02038410	BTB-680	
R61	180KΩ	2	03032610	BTB-180K	
R62	33KΩ	½	03031950	BTS-33K	
R63	330KΩ	1	03032070	BTA-330K	
R64	82KΩ	2	03037930	BTB-820K	
R65	68KΩ	½	03031890	BTS-68K	
R66	56KΩ	½	03031880	BTS-56K	
R67	470KΩ	½	03033090	BTS-470K	
R68	470Ω	½	03031730	BTS-470	
R69	470Ω	1	03031730	BTA-470	
R70A	22KΩ				
B	82000Ω		#88000631	#PC-100	#1401-01
C	82000Ω				
R71	22KΩ		02041930	BTS-22K	
R72	10000Ω 5%		03030460	BTS-1000 5%	
R73	470KΩ	2	03038090	BTB-470K	
R74	1Meg 5%		03031880	BTS-1Meg 5%	
R75	3.3Meg		03032190	BTS-3.3Meg	
R76	2.2Meg	½	03032620	BTS-2.2Meg	
R77	220Ω	1	03034690	BTA-220	
R78	100KΩ	2	03038010	BTB-100K	
R79	82KΩ	½	03032000	BTS-82K	
R80	100KΩ	½	03032010	BTS-100K	
R81	1Meg	½	03041940	BTS-1Meg	
R82	560Ω	1	02041740	BTA-560	
R83	560Ω	1	02041740	BTA-560	
R84	100KΩ	½	03032610	BTS-100K	
R85	10KΩ	2	02037890	BTB-10K	
R86	100KΩ	½	03032010	BTS-100K	
R87	680KΩ	½	03032110	BTS-680K	
R88	4.7Meg	½	03032210	BTS-4.7Meg	
R89	18000Ω 5%	½	03030540	BTS-1800 5%	
R90	82000Ω 5%	½	03030700	BTS-8200 5%	
R91	47KΩ	½	03031970	BTS-47K	
R92	18KΩ	½	03032090	BTS-18K	
R93	100KΩ	½	03032010	BTS-100K	
R94	150KΩ	½	03032030	BTS-150K	
R95	6800Ω	1	03044970	BTA-6800	
R96	12KΩ 5%	1	02030740	BTS-12K 5%	
R97	470KΩ	½	03032580	BTS-470K	
R98	68Ω	½	03032350	BTS 68	
R99	150Ω	4	02121620	PW4-150	
R100	68Ω	½	03032350	BTS-68	
R101	45000Ω	10	02130080	13 1/4A-4500	
R102	18KΩ	2	02027920	BTB-18K	
R103	18KΩ	2	02037926	BTB-18K	
R104	10000Ω	1	02042426	BTS-1000	
R105	470KΩ	1	02034690	BTA-47K	
R106	120Ω	13.5	02235201		
R107	100KΩ	1	02045010	BTA-100K	

* Items R70A, R70B, R70C, C67A, C67B, C67C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI	RATING SEC 1	RATING SEC 2	DUMONT Part No.	Halldorson Part No.	Merit Part No.	RCA TYPE No.	Stancor Part No.	Thordorson Part No.	Triad Part No.
				REPLACEMENT DATA						
T1	117VAC @ 8.7A	550VCT @ .174ADC tap ④ 468VCT @ .186ADC	5VAC @ 3A	20000071						
		SEC. 3	SEC. 4	SEC. 5						
		5VAC @ 3A	6.3VAC @ 11A							

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	DUMONT Part No.	Halldorson Part No.	Merit Part No.	RCA Part No.	Ram Part No.	Stancor TYPE No.	Thordorson Part No.	Triad Part No.
		REPLACEMENT DATA							
T2	Horiz. Output Trans.	20009091	FB419 & RF800 *		235T1 & 214R1 *	X094 *		FLY-16 & WC-20 *	D 50 & WC-11 *
T3	Vert. Output Trans.	30006711	21800①	A-3935①	V310	A-8115 ①		24898 ①	A-307X
T4A	Yoke (90°) Horiz. (21MH) Vert. (40MH)	89013333	DF600②	MDF-51	218D1 ③	DY-13A ②		Y-14 ④	Y-50-1 ②
T5	Width Coil (3.7-17MH)	21018601		MWC-8	212R1 ①	203R16 ①	WC-8 ①	WC-18	WC-12 ① ④

① Drill new mounting hole(s).
② Connect horizontal yoke damping network across terminals #3 and #7. Use original network if necessary.
③ Use original yoke damping network.
④ Connect to coded blue and red terminals.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
	9	9		9	9		9	9
	7	7		7	7		7	7
	5	5		5	5		5	5
	3	3		3	3		3	3
	1	1		1	1		1	
	6	Term. #3 of RF800		Term. "B" of 214R1	Outer Winding of 203R16		Term. #1 of WC-20	Orange Term of WC-11
	8	Term. #4 of RF800		Term. "D" of 214R1	Outer Winding of 203R16		Term. #3 of WC-20	Black Term. of WC-11
Connect Width Coil Across	T & 3	Term. #1 & #2 of RF800 across 3 & 1		Term. "A" & "B" of 214R1 across 3 & 1	Inner winding of 203R16 across 3 & 1		Term. #3 & #4 of WC-20 across 3 & 1	Red & blue Term. of WC-11 across 3 & 1
Special Notes →		⑤		⑤	⑤		⑤	⑤

⑤ If the picture is out of phase, reverse width coil primary, or secondary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI	IMPEDANCE SEC	DUMONT Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordorson Part No.	Triad Part No.	NOTES
			REPLACEMENT DATA						
T6	6KΩ	4Ω	Part of Spkr.	Z1113	A-2830	A-3877	24851	S-3X	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP	DUMONT Part No.	QUAM Part No.	NOTES
				REPLACEMENT DATA		
SP1	10"	PM	4Ω	18005611	10A31	

COILS (RF-IF)

ITEM No.	USE	DC RES PRI	DC RES SEC	DUMONT Part No.	MEISSNER Part No.	MERIT Part No.	MILLER Part No.	NOTES
				REPLACEMENT DATA				
L1A	Ant. Coils	0Ω CT	0Ω	40018091				Channel 2
B	Ant. Coils	0Ω CT	0Ω	40018092				Channel 3
C	Ant. Coils	0Ω CT	0Ω	40018093				Channel 4
D	Ant. Coils	0Ω CT	0Ω	40018094				Channel 5
E	Ant. Coils	0Ω CT	0Ω	40018095				Channel 6
F	Ant. Coils	0Ω CT	0Ω	40018096				Channel 7
G	Ant. Coils	0Ω CT	0Ω	40018097				Channel 8
H	Ant. Coils	0Ω CT	0Ω	40018098				Channel 9
I	Ant. Coils	0Ω CT	0Ω	40018099				Channel 10
J	Ant. Coils	0Ω CT	0Ω	40018101				Channel 11
K	Ant. Coils	0Ω CT	0Ω	40018102				Channel 12
L	Ant. Coils	0Ω CT	0Ω	40018103				Channel 13
L3A	Neut. Coil	0Ω						
L3A	RF, Mixer Grid, & Osc. Coils	0Ω		40018104				Channel 2
B	RF, Mixer Grid & Osc. Coils	0Ω		40018105				Channel 3
C	RF, Mixer Grid & Osc. Coils	0Ω		40018106				Channel 4
D	RF, Mixer Grid & Osc. Coils	0Ω		40018107				Channel 5
E	RF, Mixer Grid & Osc. Coils	0Ω		40018108				Channel 6
F	RF, Mixer Grid & Osc. Coils	0Ω		40018109				Channel 7
G	RF, Mixer Grid & Osc. Coils	0Ω		40018111				Channel 8
H	RF, Mixer Grid & Osc. Coils	0Ω		40018112				Channel 9
I	RF, Mixer Grid & Osc. Coils	0Ω		40018113				Channel 10
J	RF, Mixer Grid & Osc. Coils	0Ω		40018114				Channel 11
K	RF, Mixer Grid & Osc. Coils	0Ω		40018115				Channel 12
L	RF, Mixer Grid & Osc. Coils	0Ω		40018116				Channel 13
L4	Fil. Choke	0Ω		21004670				
L5	Conv. Plate	.1Ω	0Ω	30009311				
L6A	Int. Video IF	.2Ω		30006745		TV-134		
B	43.25MC Trap	0Ω						
L7A	41.25MC Trap	0Ω		21023421				
B	47.25MC Trap	0Ω		21017762	19-1006		4634	14 Microhenries
L8	1st. Video IF	.1Ω	.1Ω	20006991	17-4534	TV-130	6219	
L9	2nd. Video IF	.1Ω		21017767	19-1006		4634	14 Microhenries
L10	Fil. Choke	0Ω		21017762	19-1006		4634	14 Microhenries
L11	3rd. Video IF	.1Ω	.1Ω	20006991	.7-4522	TV-130	6219	
L12	Fil. Choke	0Ω		21017762	19-1006		4634	14 Microhenries
L13	4th. Video IF	.1Ω	.1Ω	20006991	17-4524	TV-130	6219	
L14	Series Peaking Coil	4.7Ω		21023451			4636	27 Microhenries
L15	Shunt Peaking Coil	8.3Ω		21006638	19-4201	TV-134	6154	197 Microhenries
L16	Series Peaking Coil	8.5Ω		21006622	19-3100	TV-131	6177	100 Microhenries
L17	Series Peaking Coil	9.5Ω		21006638	19-4201	TV-134	6154	197 Microhenries
L18	4.5MC Trap	3Ω		21010966	20-1004	TV-131	3489	
L19	Shunt Peaking Coil	18Ω		21006629	19-3500	TV-134	6174	500 Microhenries
L20	Sound IF	1.6Ω		21023212	20-1004	TV-131	3489	
L21	Ratio Det.	5Ω	.7DCT	20009041	17-3497	TV-135	6305	Tertiary winding -.65Ω
L22	Horiz. Osc.	33Ω		21010991	19-1576	TV-133	6310	
L23	RF Choke	8.1Ω		21023191	19-1994	BC-303	4530 *	2.48 Microhenries
L24	RF Choke	8.1Ω		21006550	19-1005		4612	8.2 Microhenries
L25	RF Choke	1.8Ω		21006280	19-1002		4606	IRC part #CL-1; 1.8 Microhenries, IRC part #CLA 2.2 Microhenries, IRC part #CLA
L26	RF Choke	1.8Ω		21006290	19-1002		4606	

* Drill mounting hole.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT (000 ℃)	DUMONT Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordorson Part No.	Triad Part No.
				REPLACEMENT DATA					
L27	.174ADC	44.8Ω	3 HY	21010051	C-5030	C-2996	C-2326 ①	24C43 ②	C-17X ②
L28	.168ADC	59.3Ω	1.06 HY	21012431	C-5040	C-3994	C-2327	24C41	C-23X ②
				21012432 †					

† Alternate filter choke.
① Drill one new mounting hole.

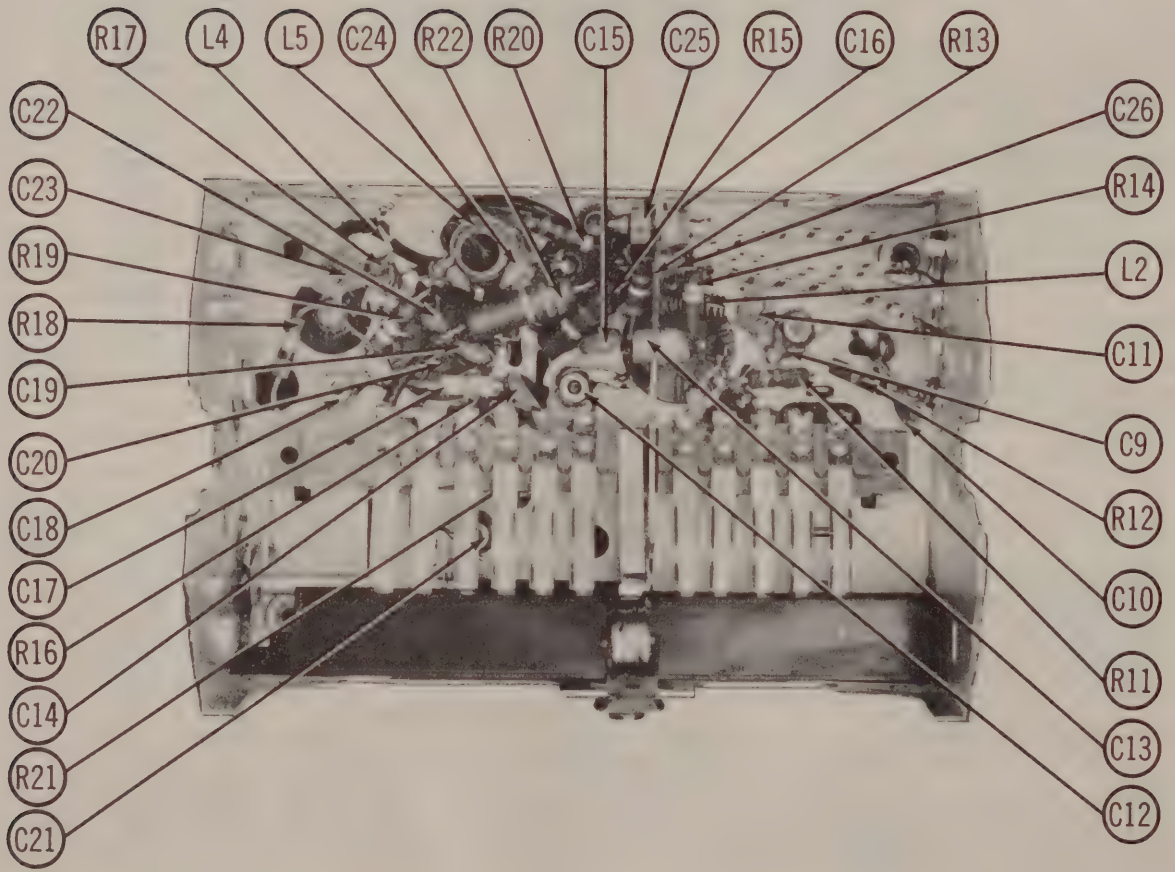
PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DUMONT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3/8A 250V	11000730	11001880	312.375 (3AG-3/8A)	357001	AGC 3/8	4405

MISCELLANEOUS

ITEM No.	PART NAME	DUMONT PART No.	NOTES
M2	Dial Light	12001310	#47
M3	Tuner	89013461	VHF, Not used in some versions
	Tuner	89013471	VHF, Used in some versions
M4	Tuner	89013451	UHF, Used with VHF tuner part #89013471
M5	Trap	88000861	VHF - Ant. Input Filter
M6	Switch	05005120	TV-Phono (DPDT-Slide type)
M7	Centering Device	29000651	
M8	Ion Trap	29000661	
	Magnet	28001391	"L" Shunt For Ion Trap
	Knob	45006001	Channel Selector - Ch. RA321
	Knob	45006011	Channel Selector - Ch. RA322
	Knob	45006021	On-off-volume
	Knob	45005963	Vernier - Ch. RA321
	Knob	45005966	Vernier - Ch. RA322
	Knob	45005973	Brightness - Ch. RA321
	Knob	45005975	Brightness - Ch. RA322
	Knob	45006041	Control Door
	Dial	45005986	UHF - Ch. RA322
	Safety Glass	45005152	
	Mask	64010203	



RF TUNER BOTTOM VIEW

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V18 and V19. Check fuse, M1. Check waveform W15.

If Satisfactory	If Unsatisfactory
Check T2, T4A, T5, C89, C88, C87, C7, R102, R103, R101 and other associated components.	Check L22, C83, C82, C84, C86, R90, R91, R94, R95 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V17, V18, V20 and V21. Check C86, C6, C85, R96, R95, R101, T2 and other associated components.

BLOOMING

Check by substitution V17, V18, V19, V20 and V21. Check L26, R101, C86 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video ".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under " Dead Set".

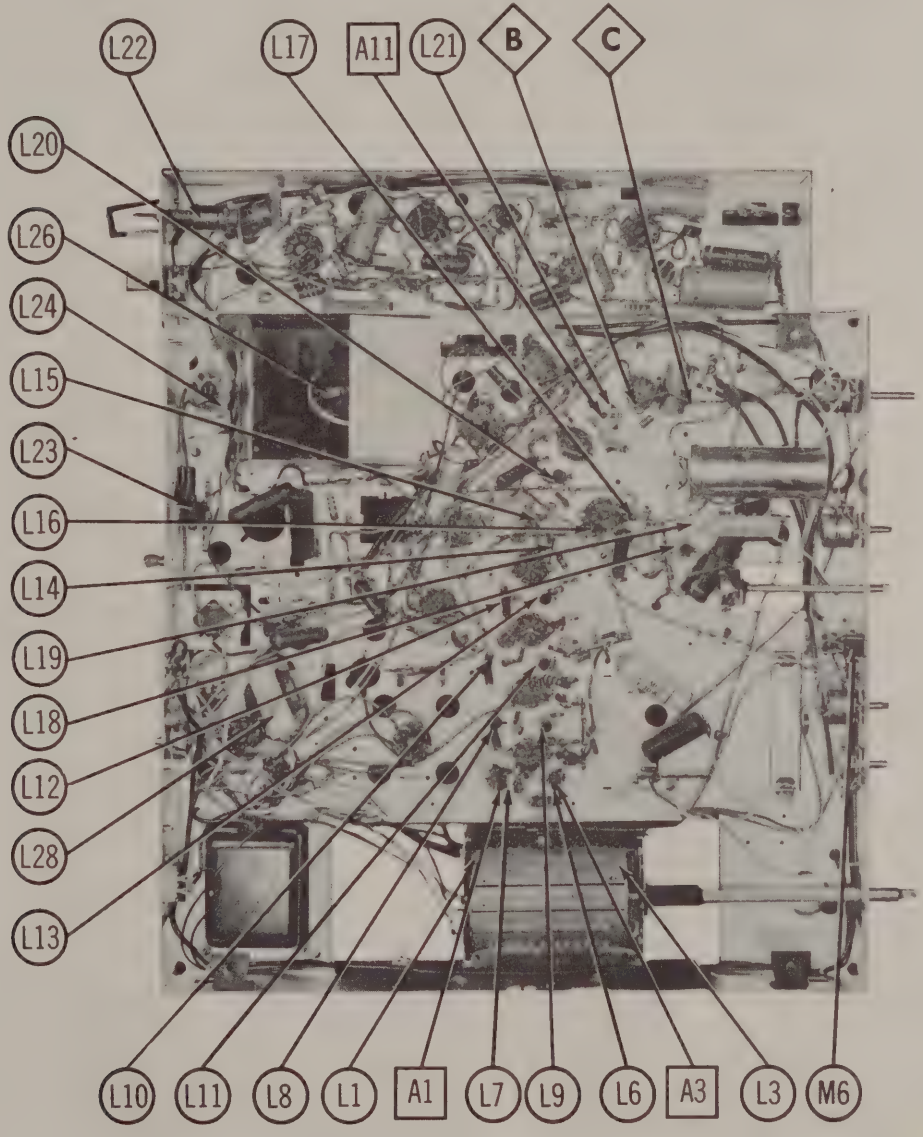
KEYSTONE EFFECT

Check T4 and its associated components.

INTERMITTENT STREAKS

Check hig voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

EMERSON
MODEL 825-B(Ch.120243-B)

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp	12BA6	12BA6	7BK	
V3	Det-AVC-AF Amp	12AV6	12AV6	7BT	12AT6 Used as alternate.
V4	Audio output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: EMERSON PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	925282			TCD497	TDL-5030-150	FMD-301	Red
B	30	150							Green
C2	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C3A	720								
B	2000		♦923028						
C	5000			♦PC-154					
D	500								
E									
C4	.022	400	923524	DF-203		PT4122	IMP4-S22	3304122	
C5	.047	400	923554	DF-503		PT4147	IMP4-S47	3304147	
C6	.047	400	923554	DF-503		PT4147	IMP4-S47	3304147	

♦ Items C3A, C3B, C3C, C3D, C3E, R5A, R5B and R5C are combined in one unit.
When replacing items separately, items C3D and C3E should total 500MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500KΩ	½	390305					Volume

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½	340812	BTS-22K	
R3	120Ω	½	340272	BTS-120	
R4	3.3Meg	½	351332	BTS-3.3Meg	
R5A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦923028	BTS-470K	
C	470KΩ	½		BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	150Ω	½	340292	BTS-150	
R7	1500Ω	1	380532	BTA-1500	

♦ Items R5A, R5B, R5C, C3A, C3B, C3C, C3D, and C3E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.2Ω	734102	Z1101①	A-3025①	A-3332①	26S58	S-12X①	① Drill one new mounting hole.

SPEAKER

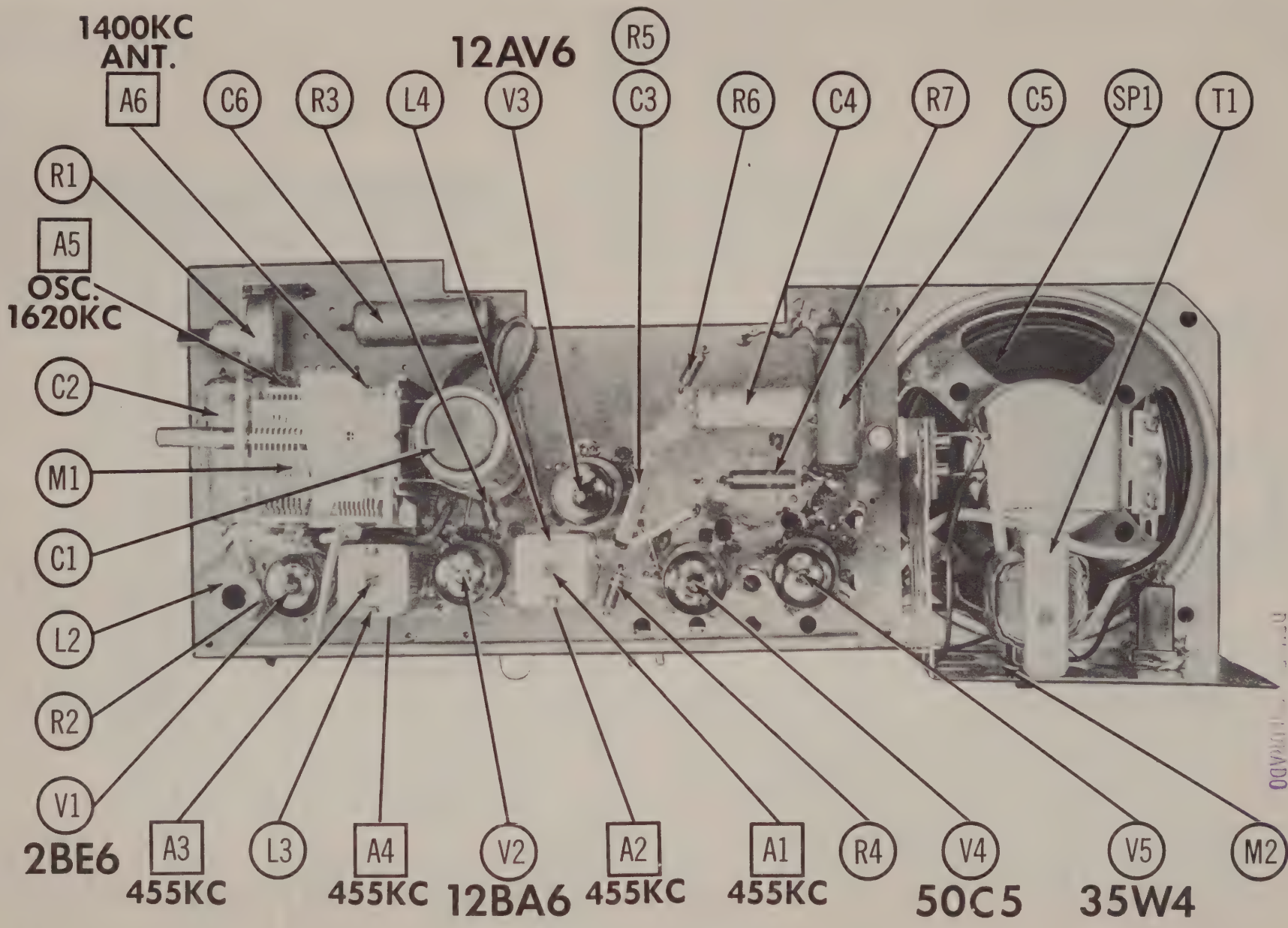
ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	4"	PM	3.2Ω	180112	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant Coil	.6Ω		700102				
L2	Osc Coil	.9Ω	12.5Ω	716091				
L3	Input IF	15Ω	15Ω	720203	16-6758	BC-352	12-C1	
L4	Output IF	15Ω	15Ω	720203	16-6758	BC-353	12-C2	

MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M1	Tuning Cap.	900123	2Gang (15-260MMF, 18-120MMF)
M2	Switch	510083	Radio (On-off) SPST slide type
	Cabinet		For replacement specify colors, model number.
	Knob	460613	Tuning-French Grey
	Knob	460613A	Tuning- Ivory
	Knob	460614	Volume-French Grey
	Knob	460614A	Volume-Ivory
	Knob	460625A	Clock Controls
	Crystal	520217	Model 825B
	Clock Dial	520216	Model 826B

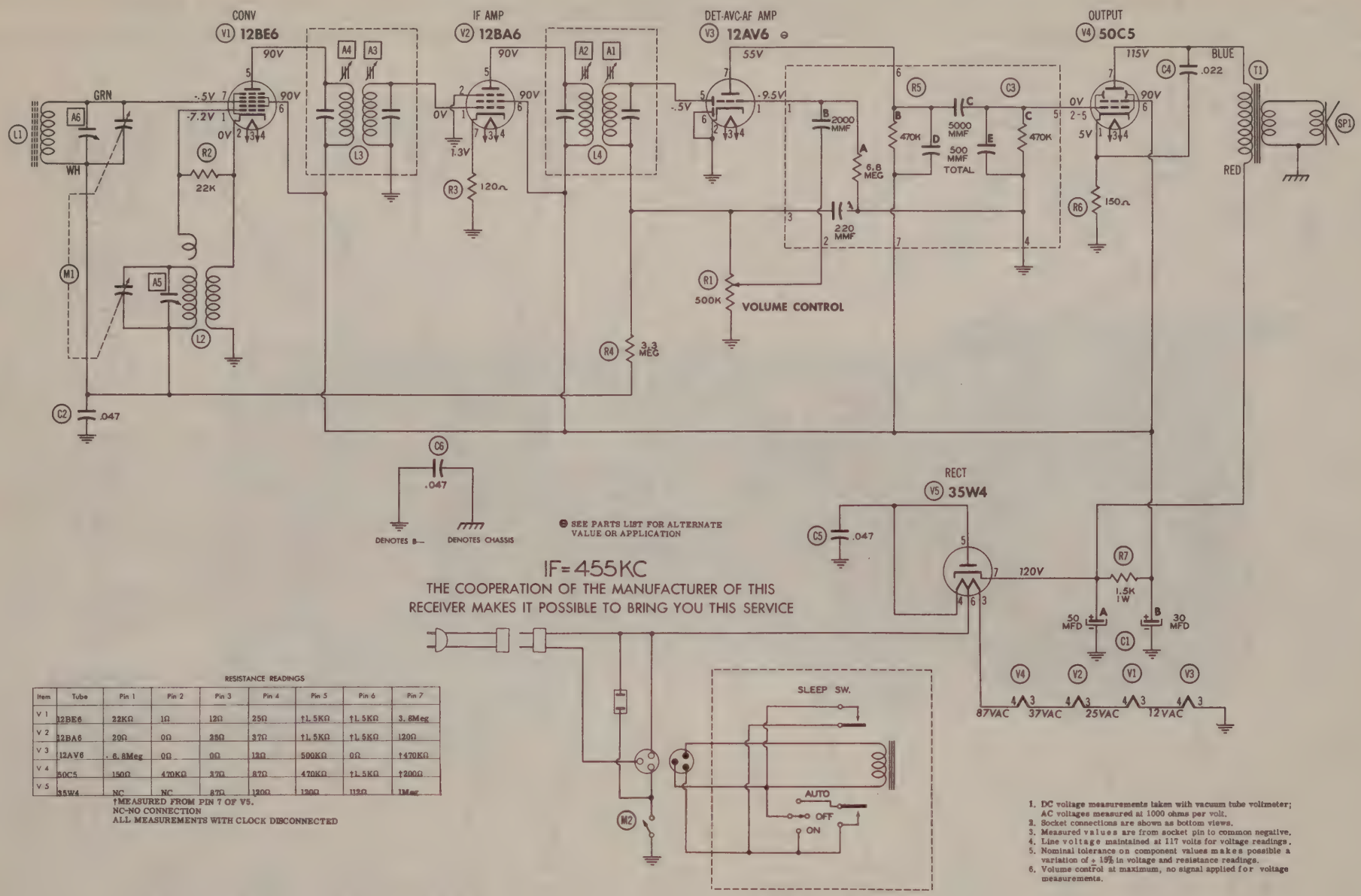


CHASSIS TOP VIEW

EMERSON
MODEL 825-B(Ch. 120243-B)

PROPERTY OF
L. F. B[illegible]KENSHIP
[illegible] ST.
[illegible]RADO

SET 287 FOLDER 7



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1Ω	12Ω	25Ω	†1.5KΩ	†1.5KΩ	3.8Meg
V 2	12BA6	20Ω	0Ω	25Ω	37Ω	†1.5KΩ	†1.5KΩ	120Ω
V 3	12AV6	.8.8Meg	0Ω	0Ω	12Ω	500KΩ	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	37Ω	87Ω	470KΩ	†1.5KΩ	†200Ω
V 5	35W4	NC	NC	87Ω	120Ω	120Ω	112Ω	1Meg

†MEASURED FROM PIN 7 OF V5.
NC-NO CONNECTION
ALL MEASUREMENTS WITH CLOCK DISCONNECTED

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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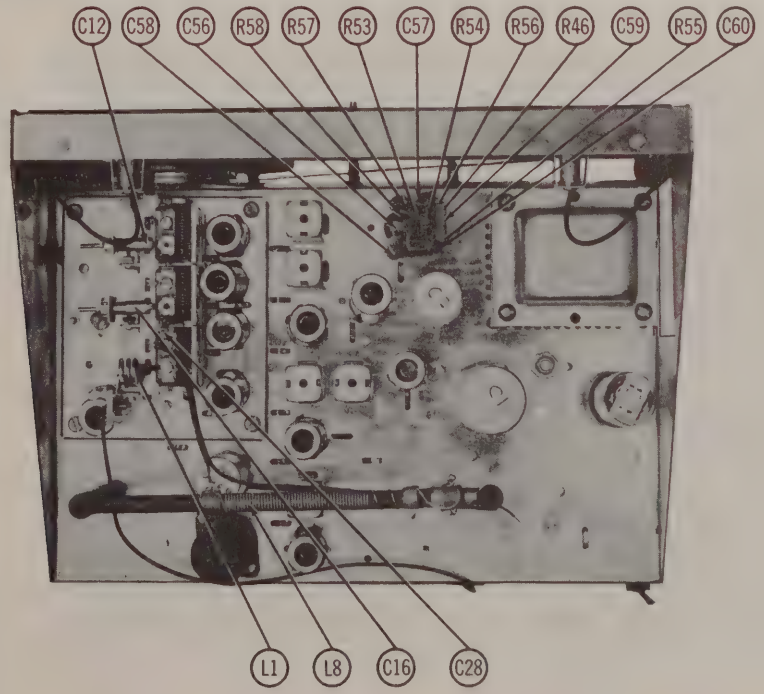
PROPERTY OF
F. BLANKENSHIP
[illegible] ADE ST.
[illegible], COLORADO

ESPEY
MODEL 301

ESPEY
MODEL 301

TRADE NAME	Espey Model 301	
MANUFACTURER	Espey Mfg. Co., Inc., 528 E. 72nd St. New York 21, N. Y.	
TYPE SET	AC Operated AM-FM Superheterodyne Tuner For Custom installation	
TUBES	Eleven	
POWER SUPPLY	105-125 Volts AC-50/60 Cycles	RATING . 6Amp@ 117 Volts AC
TUNING RANGE- BROADCAST	535KC-1720KC	FM 88MC-108MC



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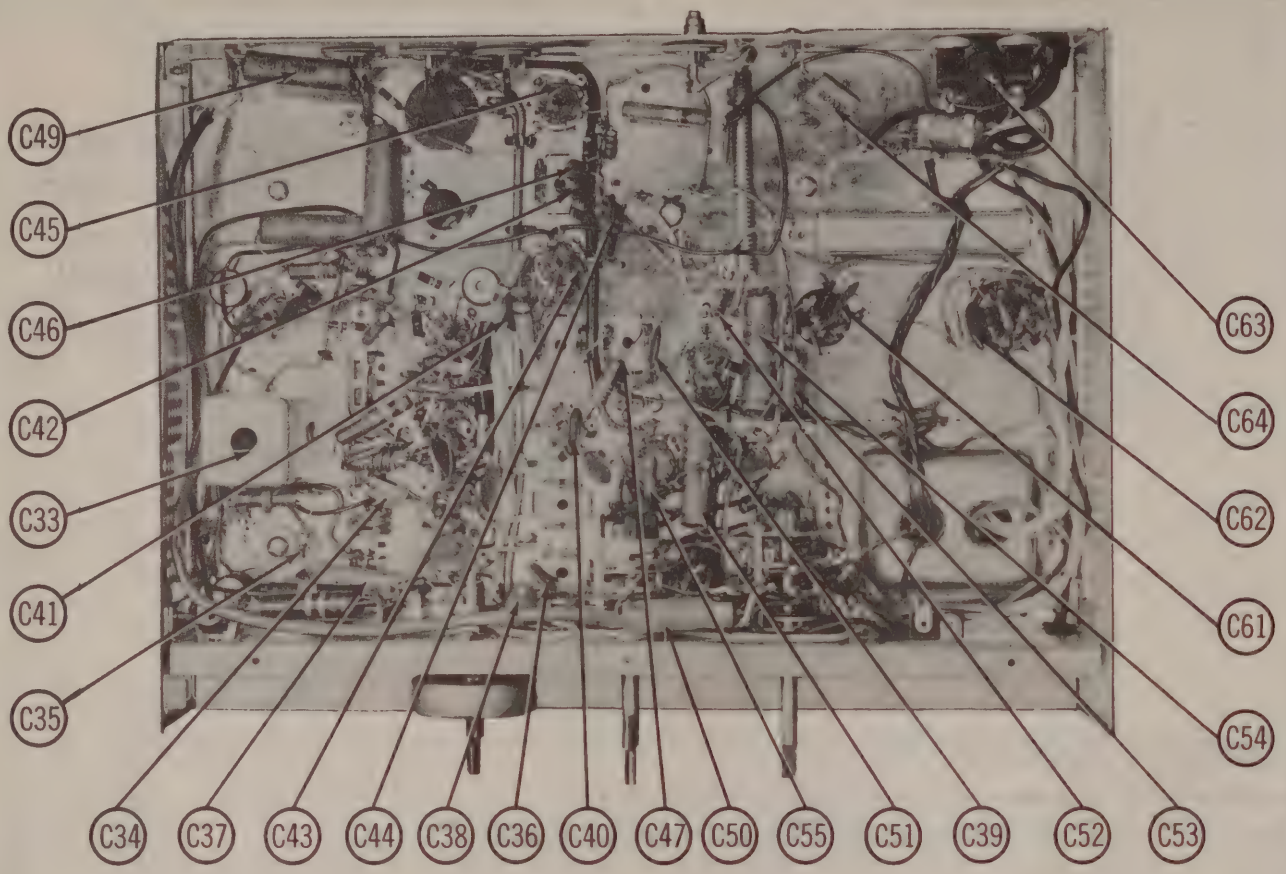
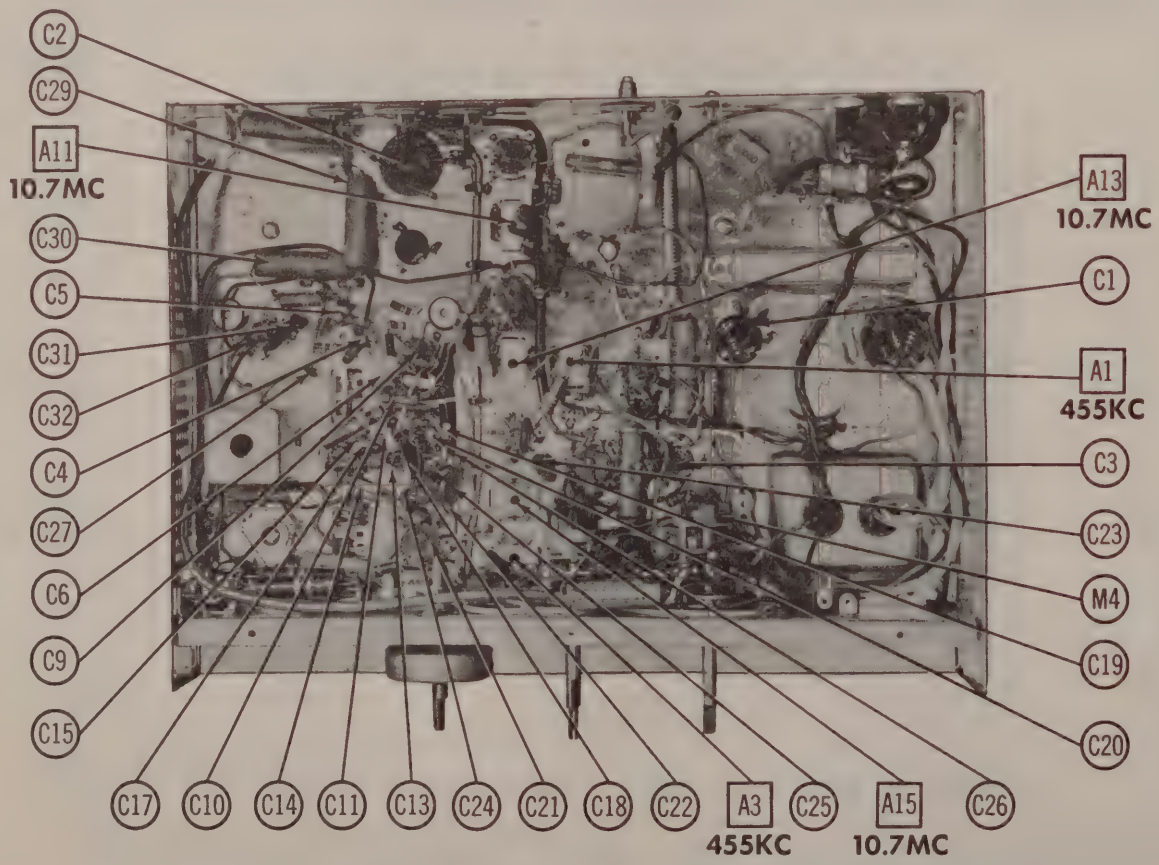
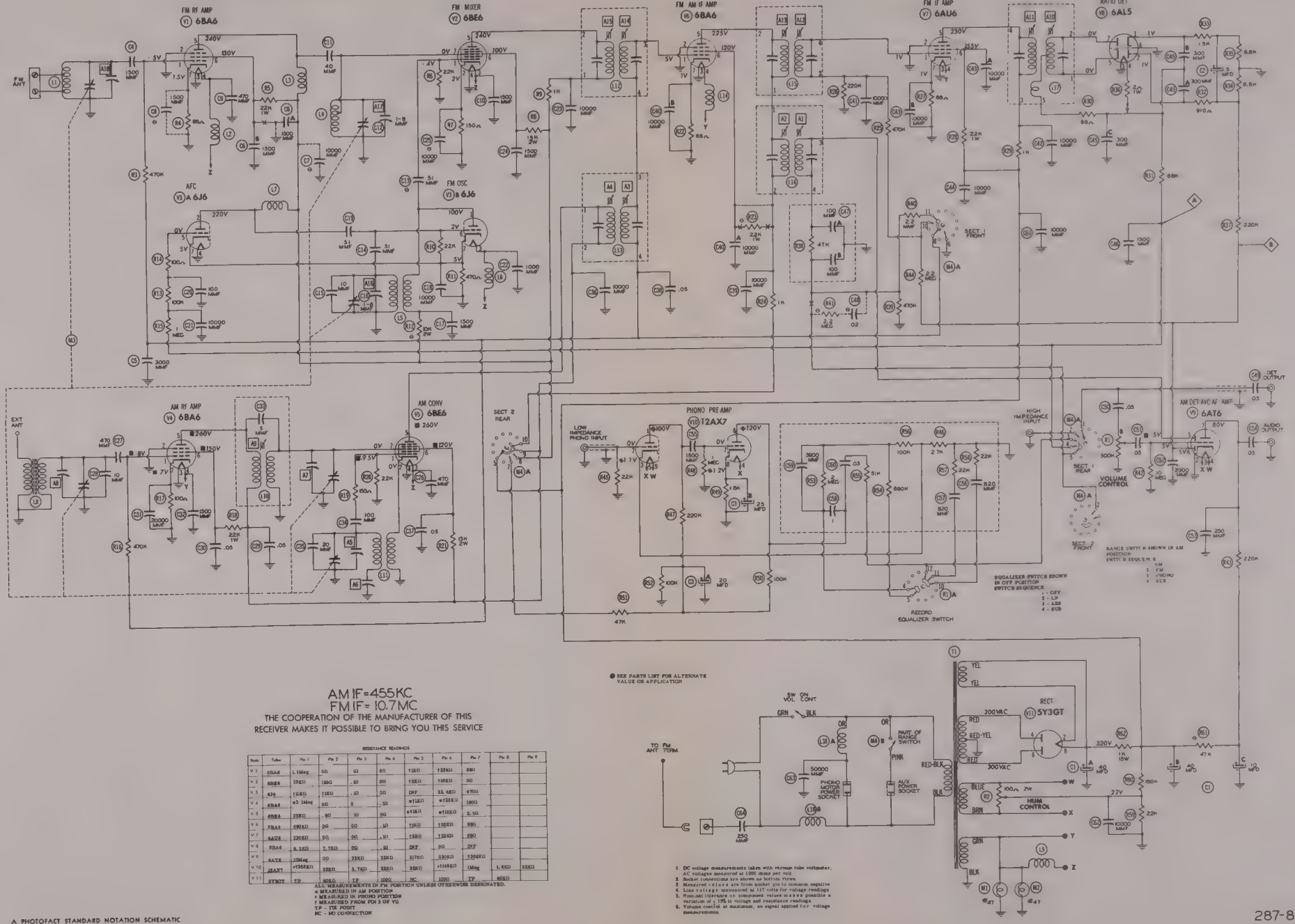




CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



AM IF = 455KC
FM IF = 10.7MC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Stage	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BA6	1.1Meg	0Ω	1Ω	0Ω	†1KΩ	†33KΩ	68Ω		
V 2	6BE6	33KΩ	180Ω	.1Ω	0Ω	†1KΩ	†18KΩ	0Ω		
V 3	6J6	†1KΩ	†1KΩ	.1Ω	0Ω	ONF	33.4KΩ	470Ω		
V 4	6BA6	ø3.1Meg	0Ω	0	.1Ω	ø†1KΩ	ø†22KΩ	100Ω		
V 5	6BE6	22KΩ	.1Ω	1Ω	0Ω	ø†1KΩ	ø†14KΩ	3.5Ω		
V 6	6BA6	680KΩ	0Ω	0Ω	.1Ω	†1KΩ	†33KΩ	68Ω		
V 7	6AU6	220KΩ	0Ω	0Ω	.1Ω	†1KΩ	†33KΩ	68Ω		
V 8	6AL5	8.5KΩ	7.7KΩ	0Ω	.1Ω	ONF	0Ω	ONF		
V 9	6AT6	1.1Meg	0Ω	33KΩ	33KΩ	ø†7KΩ	330KΩ	†290KΩ		
V 10	12AX7	ø†265KΩ	33KΩ	8.7KΩ	33KΩ	33KΩ	ø†149KΩ	1Meg	1.8KΩ	33KΩ
V 11	5Y3GT	TP	80KΩ	TP	100Ω	NC	100Ω	TP	80KΩ	

ALL MEASUREMENTS IN FM POSITION UNLESS OTHERWISE DESIGNATED.
ø MEASURED IN AM POSITION
* MEASURED IN PHONO POSITION
† MEASURED FROM PIN 3 OF V11
TP - TIE POINT
NC - NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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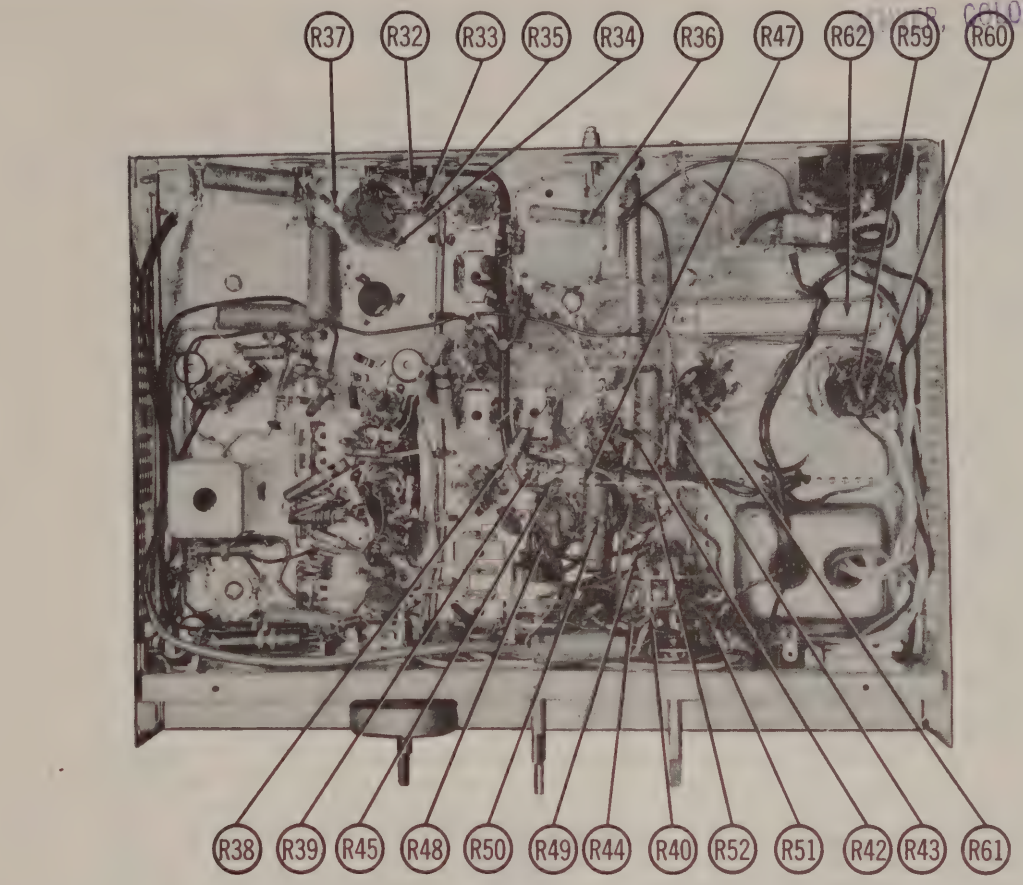
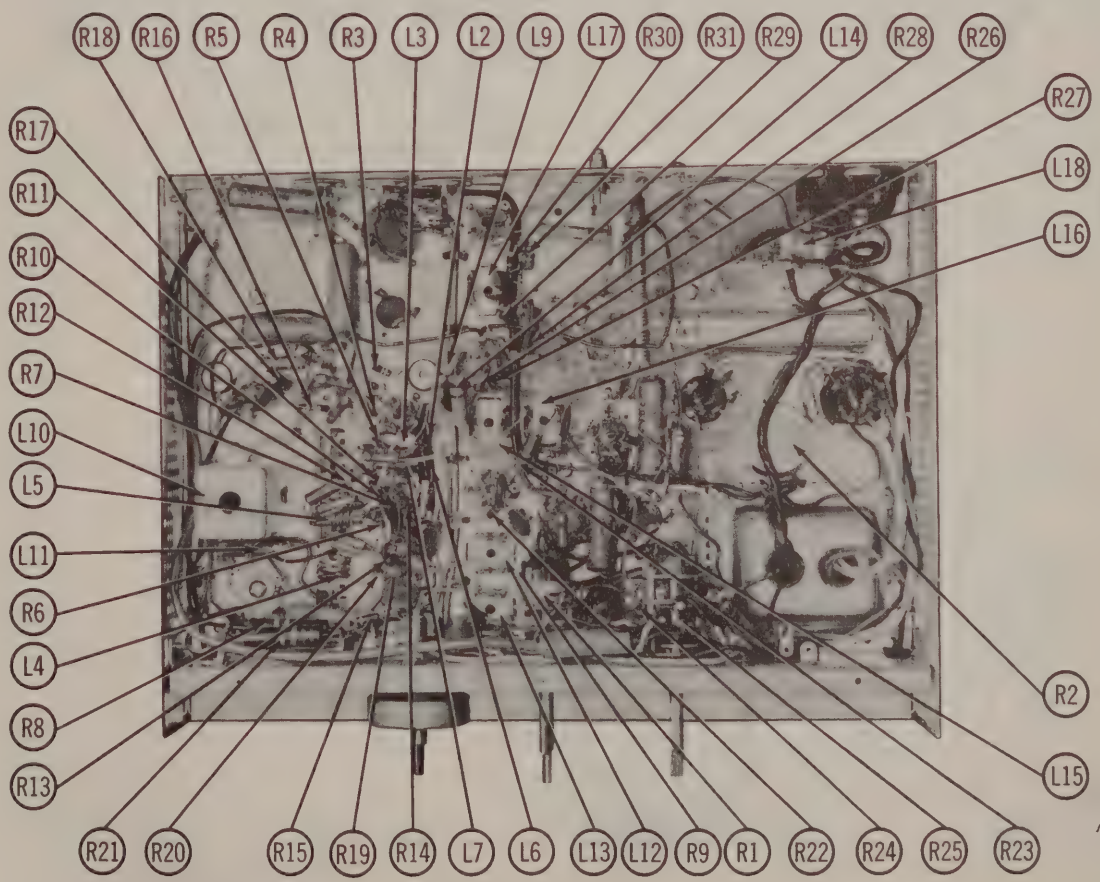
287-8

...SOCIETY OF
...LANKENSHIP.
...MEADE ST.
...ER, COLORADO





CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
Connect amplifier (and speaker) to audio output jack on rear apron of chassis.
With tuning gang fully closed set dial pointer to small mark (gold mark) just to left of "55" on dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 1 (grid) of 6BA6 (V6). Low side to chassis.	455KC (400~Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output.
2.	"	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	"	"	"	"	A3, A4	"
3.	"	High side thru 5MMF to AM Antenna lug. Low side to chassis.	1700KC	"	1700KC	"	A5	"
4.	"	"	550KC	"	550KC	"	A6	Adjust for maximum output. Repeat steps 3 and 4 to obtain proper oscillator tracking.
5.	"	"	1550KC	"	1550KC*	"	A7, A8	Adjust for maximum output.
6.	"	"	600KC	"	600KC	"	A9	Adjust for maximum output. Repeat steps 5 and 6 to obtain proper RF tracking.

* Small index mark to right of "150" on dial.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (grid) of 6AU6 (V7). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
8.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A11	Adjust for maximum deflection. Repeat steps 7 and 8.
9.	"	High side to pin 1 (grid) of 6BA6 (V6). Low side to chassis.	"	"	"	"	A12, A13	Adjust for maximum deflection. Attenuate generator output to maintain not more than -1.5 volts at VTVM.
10.	"	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	"	"	"	"	A14, A15	Adjust for maximum deflection.

FIG. 1

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use only enough generator output to produce usable pattern on screen.
Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (grid) of 6BA6 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (B). Low side to chassis.	A11, A12, A13	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	"	"	"	"	A14, A15	"
9.	"	"	"	"	"	Vert. Amp. to point (A). Low side to chassis.	A10	Reconnect stabilizing capacitor (C2). Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A-11 for maximum amplitude and straightness of cross-over lines. Proceed with step 11.

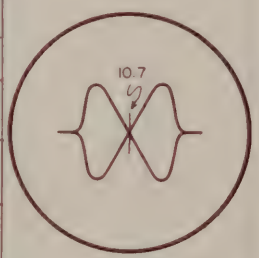


FIG. 2

FM RF ALIGNMENT

Attenuate generator output to maintain -1.5V on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna lug. Low side to chassis.	108MC	FM	108MC	DC probe to point (B). Common to chassis.	A16	Adjust for maximum deflection.
12.	"	"	106MC	"	106MC	"	A17, A18	"
13.	"	"	90MC	"	90MC	"		Check L4 and L1 with tuning wand. If necessary compress or expand coil turns for maximum deflection. Repeat steps 12 and 13 for proper RF tracking, if necessary.

HUM BALANCE ADJUSTMENT

If it becomes necessary to readjust the hum balance control (R2) allow a 10 minute warm-up period with record player disconnected and perform the following operations:

(a) Set function switch to "phono" position.
(b) Set record equalizer to "AES" position.
(c) Turn volume control fully clockwise.
(d) Reverse line plug in AC outlet and leave it in that position which gives least residual hum.
(e) Adjust R2A for MINIMUM background noise and residual hum.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

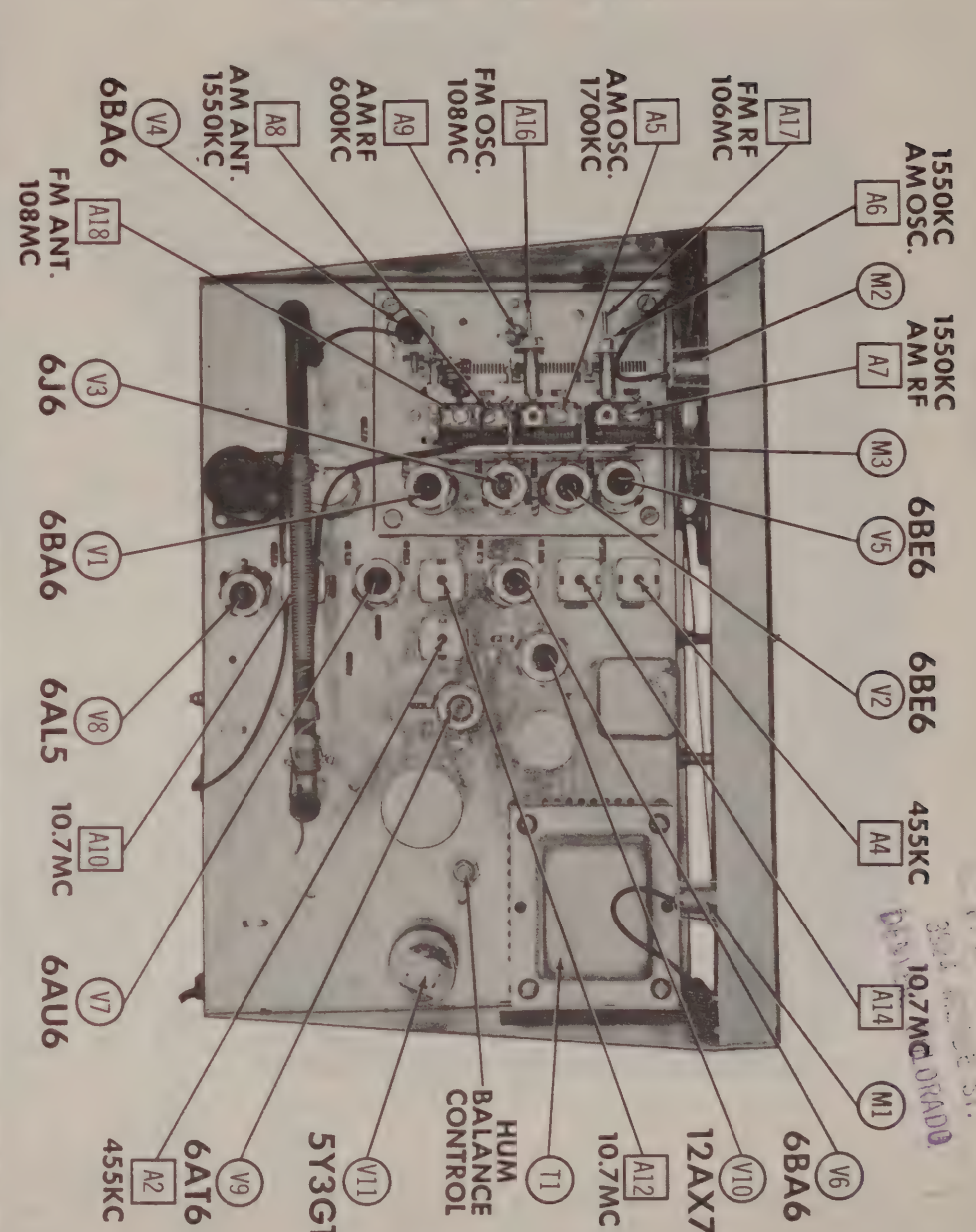
ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		ESPEY PART No.	STANDARD REPLACEMENT		
V1	FM RF AMP	6BA6	6BA6	7BK	
V2	FM Mixer	6BE6	6BE6	7CH	
V3	FM OSC-AFC	6J6	6J6	7BF	
V4	AM RF AMP	6BA6	6BA6	7BK	
V5	AM Converter	6BE6	6BE6	7CH	
V6	FM-AM IF AMP	6BA6	6BA6	7BK	
V7	FM IF AMP	6AU6	6AU6	7BK	
V8	Ratio Det	6AL5	6AL5	6BT	
V9	AM Det-AVC-AF AMP	6AT6	6AT6	7BT	
V10	Phono Preamp	12AX7	12AX7	9A	
V11	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▲40	450				FP376.8	TM-404010-450	T-165	
B	■40	450							
C	▲10	450							
C2	5	250				TC50X	TM-5250	MT-2504	
C3A	■20	450				FP234	TM-2026	T-695	
B	▲25	50							
C4	1500			D6-152	GP2L-152	UC-5215			
C5	3000			D6-302	GP2-333-302	UC-523			
C6A	1500			D6-152	801-0015	UC-5215			
B	1500			D6-152	801-0015	UC-5215			
C7	10000			DD-103	811-01	DC-511			Note 1
C8	1500			D6-152	GP2L-152	UC-5215			Note 1
C9	470			DD-471	811-471	UC-5347			
C10	1500			D6-152	GP2L-152	UC-5215			
C11	40			D6-400	GP1K-390	UC-5439			
C12	1-8			829-7	532-10				Note 3
C13	51			TC2-51	NP0-338-510	ZT-545			
C14	51			TCZ-51	NP0-338-510	ZT-545			
C15	10			TCZ-10	NP0A-100	ZT-541			
C16	1-8			829-7	532-10				
C17	1500			D6-152	GP2L-152	UC-5215			
C18	10000			DD-103	DD-103	DC511			
C19	51			TCZ-51	NP0-338-510	Z -545			
C20	100			TCZ-100	NP0-337-101	ZT-531			
C21	10000			DD-103	811-01	DC-511			
C22	1000			DD-102	801-001	DC521			
C23	10000			DD-103	811-01	DC511			
C24	1500			DD-152	811-152	DC5215			
C25	10000			DD-103	811-01	DC511			Note 2
C26	470			DD-471	811-471	UC-5347			
C27	470			DD-471	811-471	UC-5347			
C28	10			TCZ-10	NP0A-100	ZT-541			
C29	.05	400		DF-503		PT415			
C30	.05	400		DF-503		PT415			
C31	20000			DD-203	817-02				
C32	1500			DD-152	811-152	DC5215			
C33	5			TCZ-4R7	NP0A-050	ZT-555			
C34	100			TCZ-100	NP0-337-101	ZT-531		KR-1310	
C35	20								
C36	10000			DD-103	811-01	DC511			
C37	.05	400		DF-503		PT415	IMP4-S5	330415	
C38	.05	200		DF-503		PT415	IMP2-35	330215	
C39	10000			DD-103	811-01	DC511			
C40A	10000			DD3-103	811-01	DC511			
B	10000				811-01	DC511			
C41	10000			DD-103	811-01	DC511			
C42	10000			DD-103	811-01	DC511			
C43A	10000			DD3-103	811-01	DC511			
B	10000				811-01	DC511			
C44	10000			DD-103	811-01	DC511			
C45A	300			DD-301	811-301	UC-533		K-1330	
B	300			DD-301	811-301	UC-533		K-1330	
C	300			DD-301	811-301	UC-533		K-1330	

CHASSIS—TOP VIEW



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PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ESPEY PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C46	1500			D6-152	811-152	DC5215		C-1215	
C47A	100		†	PC-50	1403-01	UC-531		K-1310	
B	100					UC-531		K-1310	
C48	.02			DF-203	817-02	PT412	IMP4-S2	330412	Note 1
C49	.05	200		DF-503		PT415	IMP2-S5	330215	
C50	.05	200		DF-503		PT415	IMP2-S5	330215	
C51	.05	200		DF-503		PT415	IMP2-S5	330215	
C52	2000			D6-202	801-002	VC-522			
C53	250	500				MC240		K-1325	
C54	.05	400		DF-503		PT415	IMP4-S5	330415	
C55	1500			D6-152	811-152	UC-5215		C-1215	
C56	820	500						KR-1382	
C57	820	500						KR-1382	
C58	.1	400		DF-104		PT401	IMP4-P1	330401	
C59	3900	500						CR-1239	
C60	.03	400		DF-303		PT413	IMP4-S3	330413	
C61	10000			DD-103	811-01	DC511			
C62	10000			DD-103	811-01	DC511			
C63	50000			DF-503		PT415	IMP4-S5	330415	
C64	250	500				MC240		K-1325	

Note 1. Not used in some versions.
Note 2. Some versions may use a 1500MMF capacitor in this application.
Note 3. Some versions may use a 20MMF capacitor in this application.
† Items C47A, C47B, and R38 are combined in one unit.
♦ Items C45A, C45B and C45C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ESPEY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch		B9.314-A					Equalizer switch -panel
B	500KΩ	½						Volume and switch-rear
R2A	100Ω	2	A9.310-A	W100	A43-100	VK-121	R100L	Hum balance-Wire -wound
B	Shaft		Not Req	Not Req	FKS-1/4	Not Req	Not Req	Attach to R2A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ESPEY PART No.	IRC PART No.	NOTES
R3	470KΩ	½		BTS-470	
R4	68Ω	½		BTS-68	
R5	22KΩ	1		BTA-22K	
R6	22KΩ	½		BTS-22K	
R7	150Ω	½		BTS-150	
R8	15KΩ	2		BTB-15K	
R9	1000Ω	½		BTS-1000	
R10	22KΩ	½		BTS-22K	
R11	470Ω	½		BTS-470	
R12	10KΩ	2		BTB-10K	Note 1
R13	100KΩ	½		BTS-100K	
R14	100Ω	½		BTS-100	
R15	1Meg	½		BTS-1Meg	
R16	470KΩ	½		BTS-470K	
R17	100Ω	½		BTS-100	
R18	22KΩ	1		BTA-22K	
R19	150Ω	½		BTS-150	
R20	22KΩ	½		BTS-22K	
R21	15KΩ	2		BTB-15K	
R22	68Ω	½		BTS-68	
R23	22KΩ	1		BTA-22K	Note 2
R24	1000Ω	½		BTS-1000	
R25	470KΩ	½		BTS-470K	
R26	220KΩ	½		BTS-220K	
R27	68Ω	½		BTS-68	
R28	22KΩ	1		BTA-22K	
R29	1000Ω	½		BTS-1000	
R30	68Ω	½		BTS-68	
R31	68KΩ	½		BTS-68K	
R32	910Ω 5%	½		BTS-910 5%	Note 3

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ESPEY PART No.	IRC PART No.	NOTES
R33	1500Ω	½		BTS-1500	Note 1
R34	6800Ω	½		BTS-6800	
R35	6800Ω	½		BTS-6800	
R36	2Ω	1			
R37	200KΩ	½		BTS-220K	
R38	47KΩ	½	♦	BTS-47K	
R39	470KΩ	½		BTS-470K	
R40	2.2Meg	½		BTS-2.2Meg	
R41	2.2Meg	½		BTS-2.2Meg	Note 2
R42	10Meg	½		BTS-10Meg	
R43	200KΩ	½		BTS-220K	
R44	2.2Meg	½		BTS-2.2Meg	
R45	22KΩ	½		BTS-22K	
R46	2700Ω	½		BTS-2700	
R47	220KΩ	½		BTS-220K	
R48	1Meg	½		BTS-1Meg	
R49	1800Ω	½		BTS-1800	
R50	100KΩ	½		BTS-100K	
R51	47KΩ	½		BTS-47K	
R52	100KΩ 5%	½		BTS-100K 5%	
R53	2Meg 5%	½		BTS-2Meg 5%	
R54	680KΩ	½		BTS-680K	
R55	51KΩ 5%	½		BTS-51K 5%	
R56	100KΩ	½		BTS-100K	
R57	22KΩ	½		BTS-22K	
R58	22KΩ	½		BTS-22K	
R59	22KΩ	½		BTS-22K	
R60	180KΩ	½		BTS-180K	Note 4
R61	47KΩ	½		BTS-47K	
R62	1000Ω	15			

♦ Items R38, C47A and C47B are combined in one unit.
Note 1. Some versions use a 1000Ω resistor in this application.
Note 2. Not used in some versions.
Note 3. Some versions use a 1500Ω resistor in this application.
Note 4. Some versions use a 150KΩ resistor in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	REPLACEMENT DATA ESPEY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .6A	600VCT .079A	5VAC @ 2A	6.3VAC @.59A	6.3VAC @2.4A	B18.127					

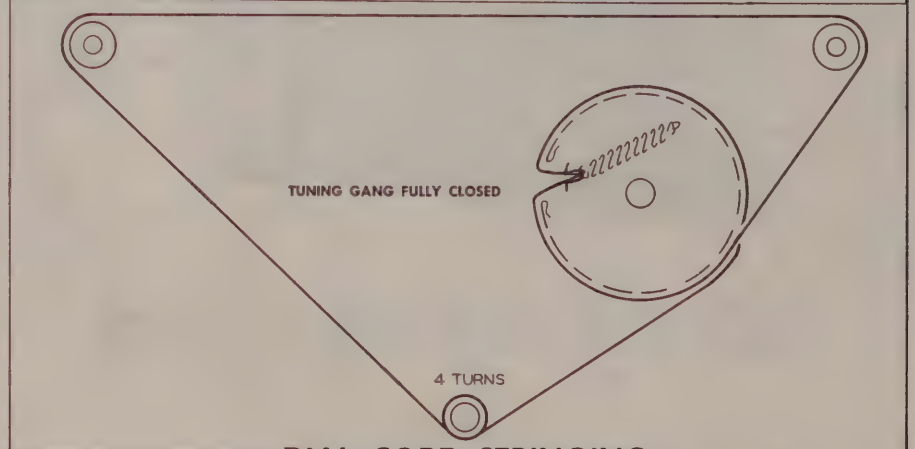
COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ESPEY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω						Tapped
L2	Fil Choke	0Ω			19-1001		4604	1.5 Microhenries
L3	RF Coil	1Ω			19-1002		4606	3 Microhenries
L4	FM RF Coil	0Ω						Tapped
L5	FM Osc Coil	0Ω	0Ω					
L6	Fil Choke	0Ω			19-1001		4604	1.5 Microhenries
L7	RF Coil	0Ω						
L8	AM Ant Coil	.3ΩCT						
L9	Fil Choke	0Ω			19-1001		4604	1.5 Microhenries
L10	AM RF Coil	87Ω	2.2Ω					
L11	AM Osc Coil	.5Ω	6.7Ω		14-1074	BC-394	70-Osc	
L12	1st FM IF	.6Ω	.6Ω	2.415	16-3487	FM-254	1463	
L13	1st AM IF	9Ω	9Ω	2.414	16-6758	BC-352	12-C1	
L14	Fil Choke	.1Ω			19-1001		4604	1.5 Microhenries
L15	2nd FM IF	.6Ω	.6Ω	2.415	16-3487	FM-254	1463	
L16	2nd AM IF	9Ω	9Ω	2.414	16-6758	BC-353	12-C2	
L17	Ratio Det.	1.5Ω	.8ΩCT	2.474	17-3488*	FM-255	1465	Tertiary winding =.4Ω
L18A	Line Choke	0Ω						
B	Line Choke	0Ω						

*Drill mounting holes

MISCELLANEOUS

ITEM No.	PART NAME	ESPEY PART No.	NOTES
M1	Dial Light		#47
M2	Dial Light		#47
M3	Tuning Cap	B6.070	6Gang AM Sections (30-535MMF-30-535 MMF 30-535MMF)
M4A	Switch		Selector
B	Switch		On-Off(power)-AUX power socket
A6	Trimmer Cap	C13518	AM Osc padder (500-1000 MMF)



DIAL CORD STRINGING

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..., COLORADO

GENERAL ELECTRIC
MODELS 455, A, 456, 457

GENERAL ELECTRIC
MODELS 455, A, 456, 457

TRADE NAME	General Electric Models 455, 455A, 456, 457
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N.Y.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES O(Five)	Types 12AU6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (grid) of 12AU6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	1500KC	"	A6	Adjust for maximum output while rocking tuning gang thru 1500KC signal.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12AU6	12AU6	7BK	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: General Electric PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	RCE-207			TD497	TDL-5030-150	MTD-301	
B	30	150							
C2	10		RCW-3127	TCZ-10	NP0A-100	ZT-541			
C3	33		RCW-3178	TCZ-33	NP0L-300	ZT-5433			
C4	.05	200	RCC-086	DF-503		PT415	IMP2-S5	330215	
C5	10000		RCW-3054	DD-103	811-01	DC-511			
C6A	400		♦RCW-3177						
B	220								
C	5000								
C7	10000		RCW-3054	DD-103	811-01	DC-511			
C8	.047	600	RCC-078	DF-503		PT6147	IMP6-S47	3306147	

♦ Items C6A, C6B, C6C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: General Electric PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	RRC-310	Q13-133	A47-500K-Z	AB-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	2.2Meg	½	URD-129	BTS-2.2Meg	
R3	2.2Meg	½	URD-129	BTS-2.2Meg	
R4	6.8Meg	½	URD-141	BTS-6.8Meg	
R5	470KΩ	½	URD-113	BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	470KΩ	½	URD-113	BTS-470K	
R7	180Ω	½	URD-031	BTS-180	
R8	1500Ω	2	URF-053	BTB-1500	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: General Electric PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.6Ω	RTO-164						

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	4"	PM	3.6Ω	S400D-7	4A07	

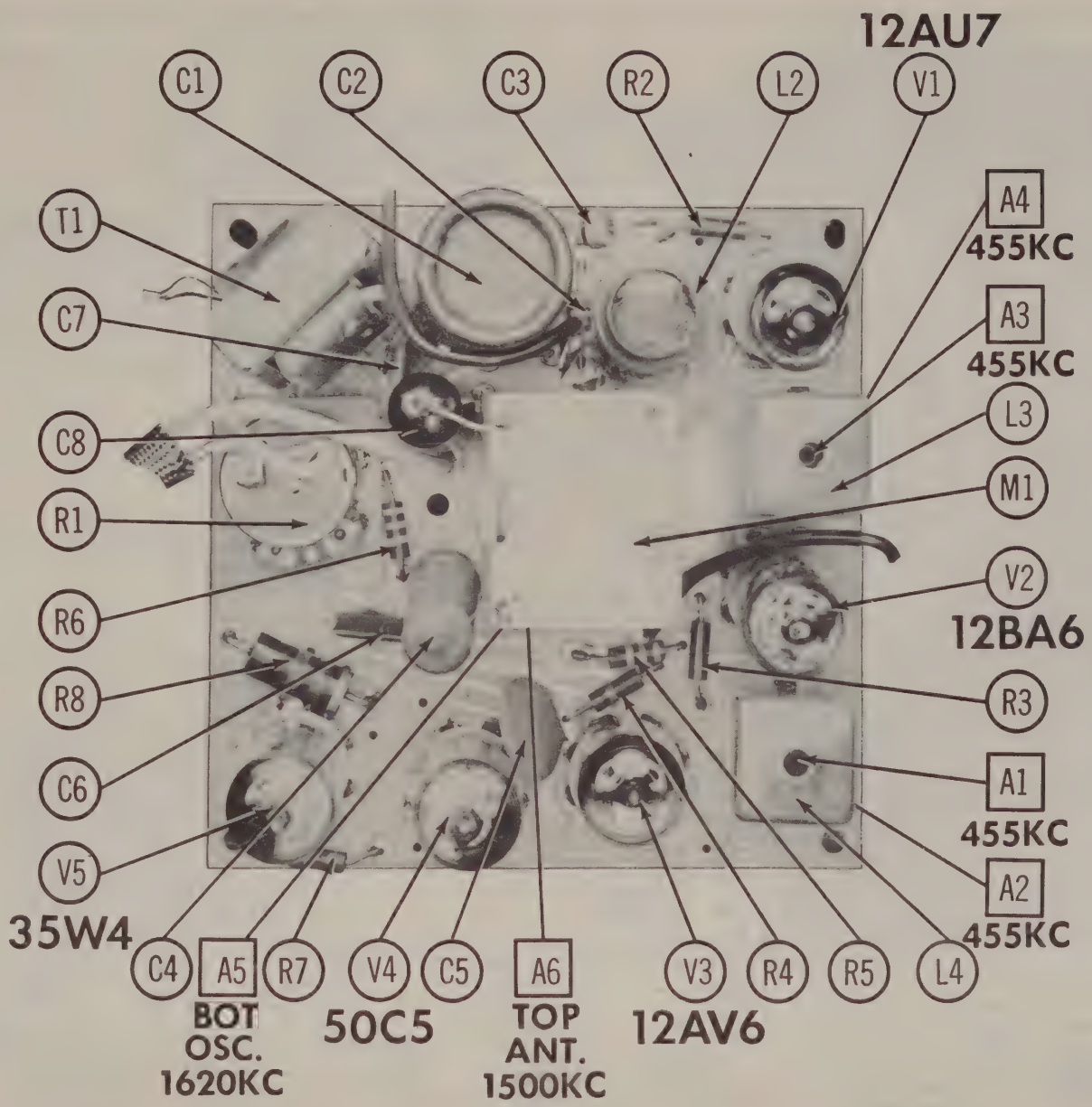
PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: MILLER PART No.	NOTES
L1	Loop Ant.	2.8Ω		RAB-255				Includes cabinet back
L2	Osc. Coil	1.9Ω	8.5Ω	RLC-133				Tertiary winding -1.4Ω
L3	Input IF	23Ω	23Ω	RTL-174	16-6758	BC-352	13-PC1	
L4	Output IF	23Ω	23Ω	RTL-174	16-6758	BC-353	13-PC2	

MISCELLANEOUS

ITEM No.	PART NAME	General Electric PART No.	NOTES
M1	Tuning Cap.	RCT-083	2 Gang (17-375MMF, 14-120MMF)
	Cabinet	N-RAU-428	Model 455
	Cabinet	N-RAU-444	Model 456
	Cabinet	N-RAU-445	Model 457
	Cabinet	N-RAU-449	Model 455A
	Knob	RDK-357	Volume - Model 456
	Knob	N-RDK-466	Volume - Models 455, 455A
	Knob	N-RDK-506	Volume - Models 457
	Knob	N-RDK-465	Tuning - Models 455, 455A
	Knob	N-RDK-504	Tuning - Model 456
	Knob	N-RDK-505	Tuning - Model 457



CHASSIS TOP VIEW

GENERAL ELECTRIC
MODEL 455

SET 287 FOLDER 9

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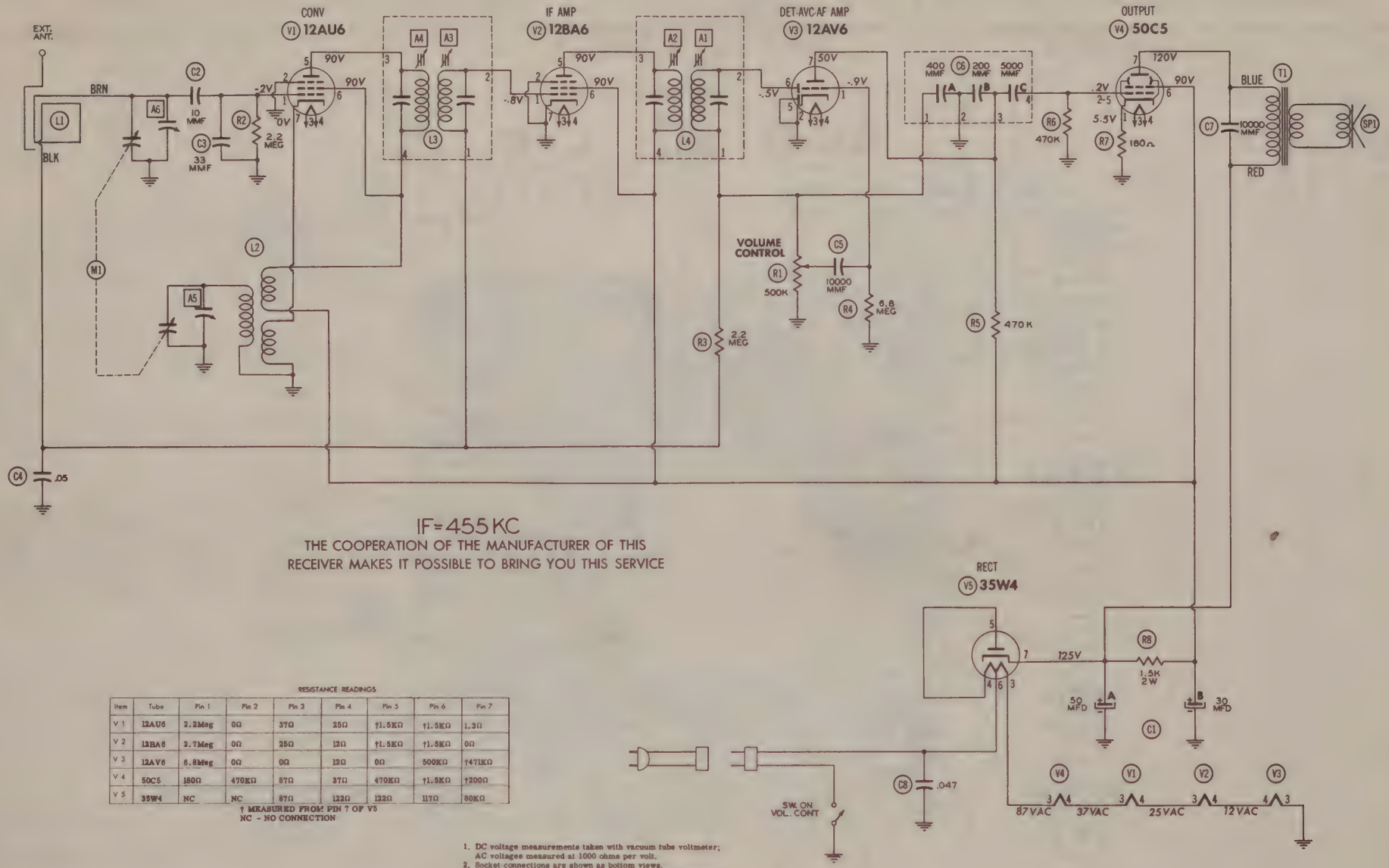

IF=455 KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AU6	2.2Meg	0Ω	37Ω	25Ω	†1.5KΩ	†1.5KΩ	1.3Ω
V 2	12BA6	2.7Meg	0Ω	25Ω	12Ω	†1.5KΩ	†1.5KΩ	0Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	0Ω	500KΩ	†471KΩ
V 4	50C5	180Ω	470KΩ	87Ω	37Ω	470KΩ	†1.5KΩ	†200Ω
V 5	35W4	NC	NC	87Ω	122Ω	122Ω	117Ω	80KΩ

† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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RETMA MEMBER

KNIGHT
MODEL 94S445

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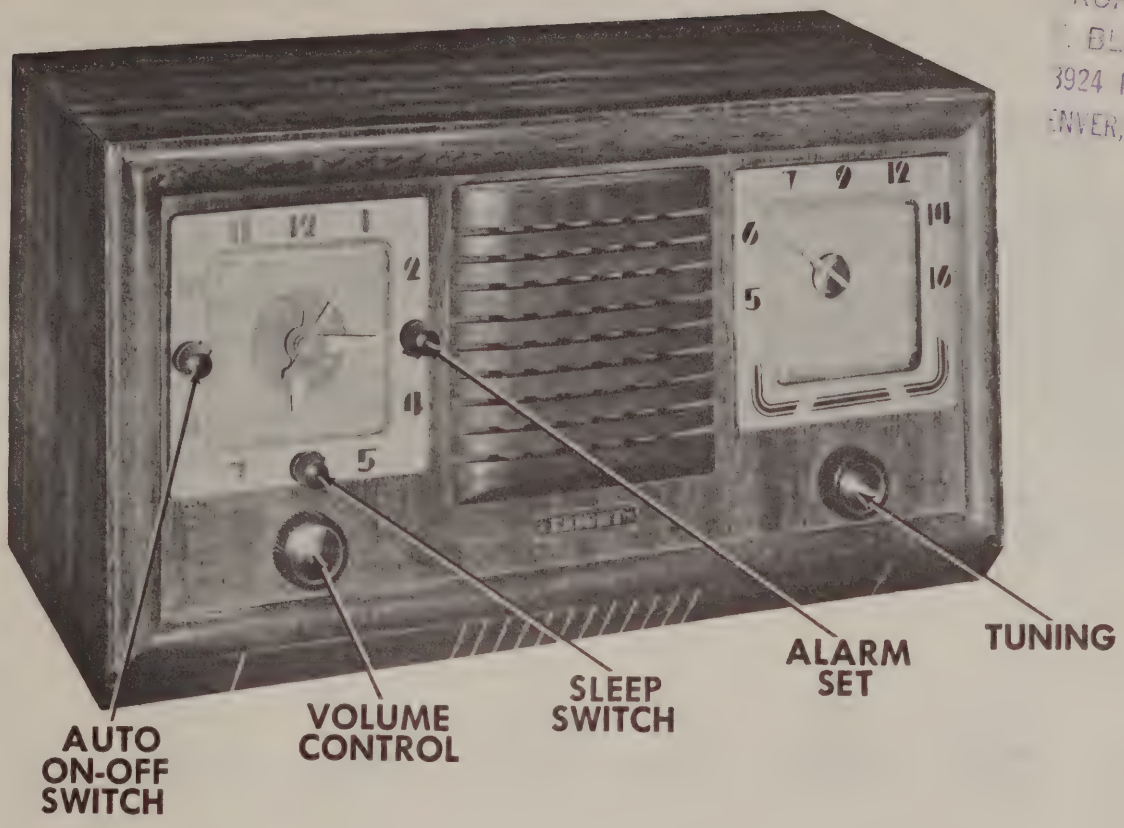
KNIGHT
MODEL 94S445



KNIGHT
MODEL 94S445

TRADE NAME	Knight Model 94S445
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 30, Ill.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles — RATING .22 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	538KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output . If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

KNIGHT MODEL 94S445

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: KNIGHT PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	■50	150	CE-601-U			FP214	TM-D50-150	D-070	
B	▲50	150							
C2	100		CC200	D6-101	GP1K-101	UC-531		KR-1310	
C3	.1	400	C208	DF-104		PT401	IMP4-P1	330401	
C4A	220								
B	5000								
C	5000		♦	♦PC-151	♦1408-02				
D	250								
E									
C5	.01	600	C206	D6-103	GP3-333-103	PT611	IMP6-S1	330611	
C6	.047	400	C204	DF-503		PT4147	IMP4-S47	3304147	

♦ Items C4A, C4B, C4C, C4D, C4E, R5A, R5B and R5C are combined in one unit. When replacing items separately, items C4D and C4E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: KNIGHT PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750KΩ	½	RV152A	Q13-137	A47-750K-Z	B-70	U51	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½		BTS-22K	Note 1
R3	82Ω	½		BTS-82	
R4	2.2Meg	½		BTS-2.2Meg	
R5A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦	BTS-470K	
C	470KΩ	½		BTS-470K	

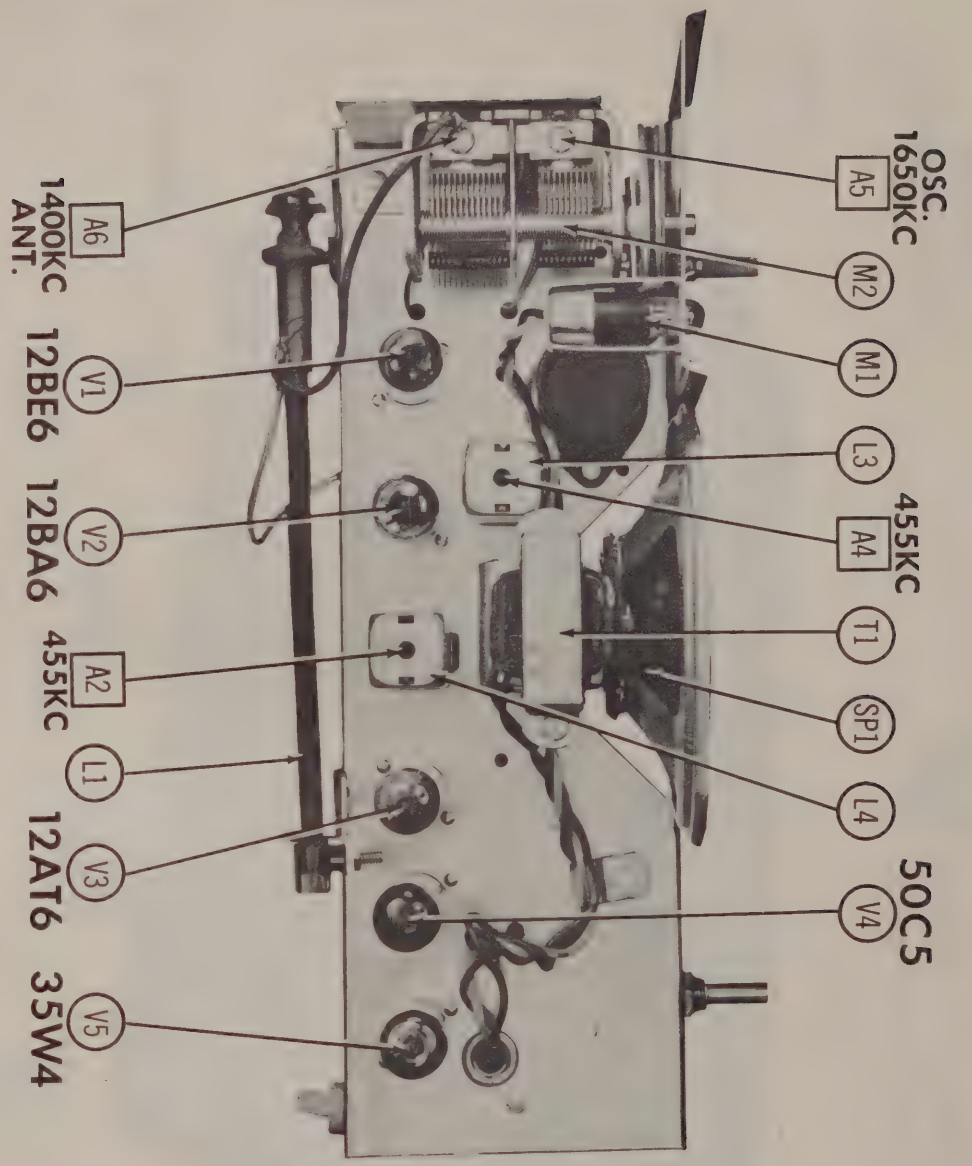
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: KNIGHT PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	150Ω	½		BTS-150	
R7	1500Ω	1	314	BTA-1500	
R8	33Ω	½		BTS-33	Note 2
R9	270KΩ	½		BTS-270K	

♦ Items R5A, R5B, R5C, C4A, C4B, C4C, C4D and C4E are combined in one unit.
Note 1. Not used in some versions.
Note 2. Some versions use a 27Ω resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.4Ω	Part of Spkr.	Z1103 ①	A-2829	A-3876	22S45	S-1X	① Tape primary tap.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	KNIGHT PART No.	QUAM PART No.	
SP1	5"	PM	3.4Ω	PM-265 PM-300 ①	5A1	① Alternate PM speaker

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	KNIGHT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.8Ω		L-A51				
L2	Osc. Coil	9Ω		L-201	14-1033 *	BC-381 ■	71-OSC ▲	Tapped @ .9Ω
L3	Input IF	15Ω	15Ω	1655-16	16-6758	BC-352	12-C1	
L4	Output IF	15Ω	15Ω	1655-16	16-6758	BC-353	12-C2	
L5	Chassis Isolation	0Ω		C14L				7 Turns (wire wound on .1MFD capacitor

* Drill mounting hole.
■ Drill mounting hole and use secondary.
▲ Drill mounting hole and use primary.

MISCELLANEOUS

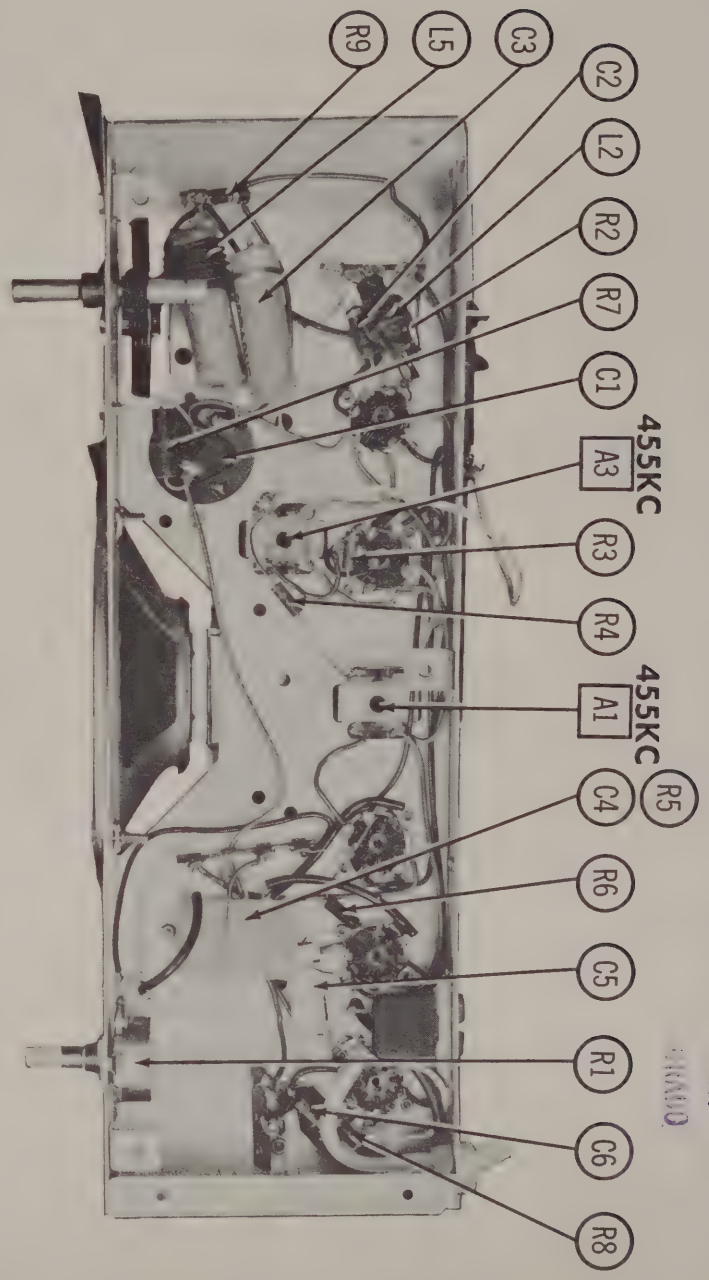
ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	Dial Light	T-47	#47
M2	Tuning Cap.	CV-149	2 Gang (43-462MMF, 34-200MMF)
M3	Clock	C57G27	Some versions may use clock (part #C57G84)
	Cabinet	H-152B	Blond
	Cabinet	H-152M	Mahogany
	Cabinet	H-164B	Deluxe blond
	Knob	H-101	Volume & tuning
	Dial Pointer	H-102	
	Dial Window	H-152	

TUNING GANG FULLY CLOSED

TUNING SHAFT

DIAL CORD STRINGING

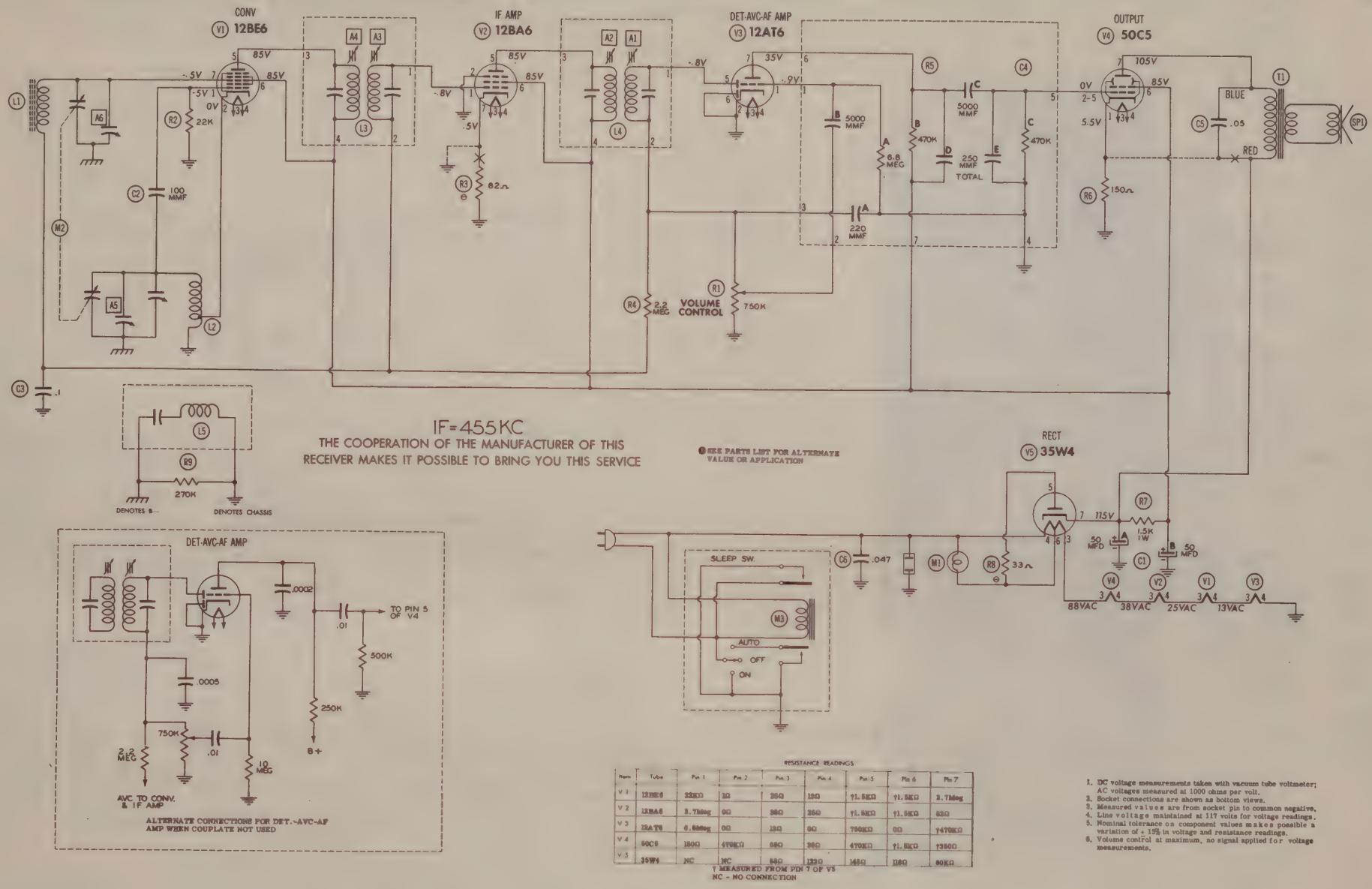
CHASSIS—BOTTOM VIEW



SET 287 FOLDER 10

KNIGHT MODEL 94S445

KNIGHT MODEL 94S445



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22KΩ	1Ω	25Ω	15Ω	†1.5KΩ	†1.5KΩ	2.7Meg
V2	12BA6	2.7Meg	0Ω	28Ω	28Ω	†1.5KΩ	†1.5KΩ	83Ω
V3	12AT6	0.68Meg	0Ω	13Ω	0Ω	750KΩ	0Ω	†470KΩ
V4	50C5	150Ω	470KΩ	98Ω	98Ω	470KΩ	†1.5KΩ	†350Ω
V5	35W4	NC	NC	54Ω	133Ω	148Ω	118Ω	80KΩ

† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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RETMA MEMBER

MAGNAVOX Ch. CMUA427CE, CMUD426CE, CTA427CE, CTD426CE (300 Series)

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CHASSIS CTD426CE

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DATE 8–55 SET 287 FOLDER 11

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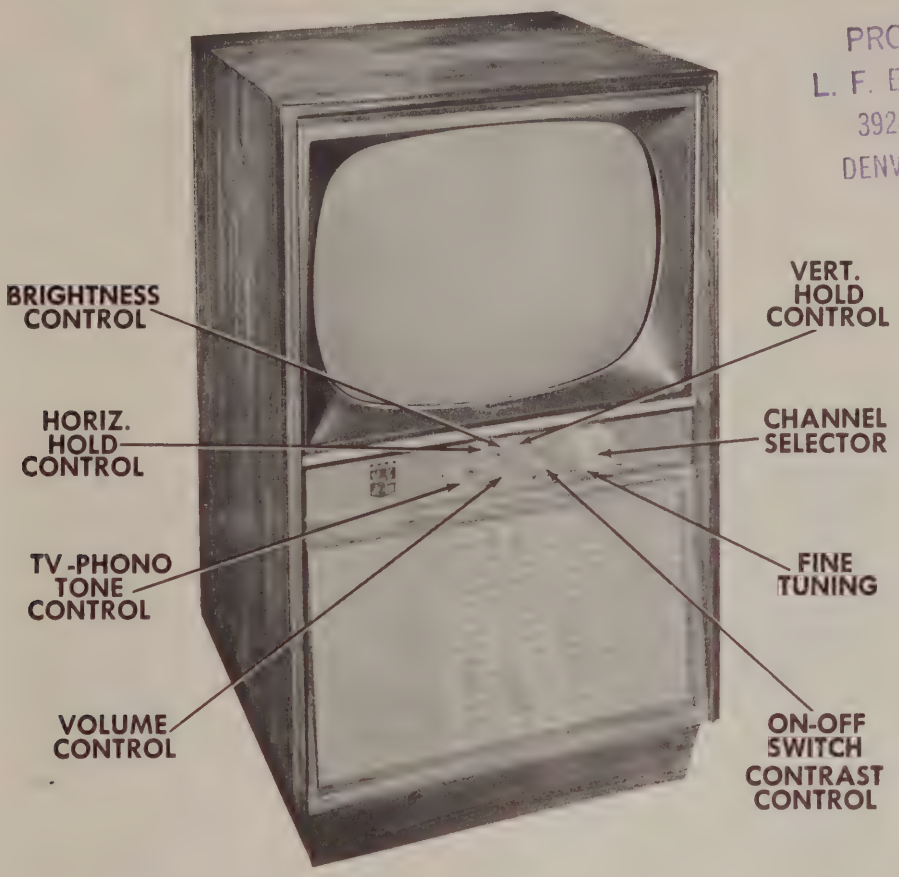

MAGNAVOX CHASSIS CTD426CE

TRADE NAME	Magnavox Chassis CMUA427CE, CMUD426CE, CTA427CE, CTD426CE (300 Series)
MANUFACTURER	The Magnavox Co., 2131 Bueter Rd., Fort Wayne 4, Indiana
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.5 Amp. @ 117 Volts AC
TUNING RANGE–	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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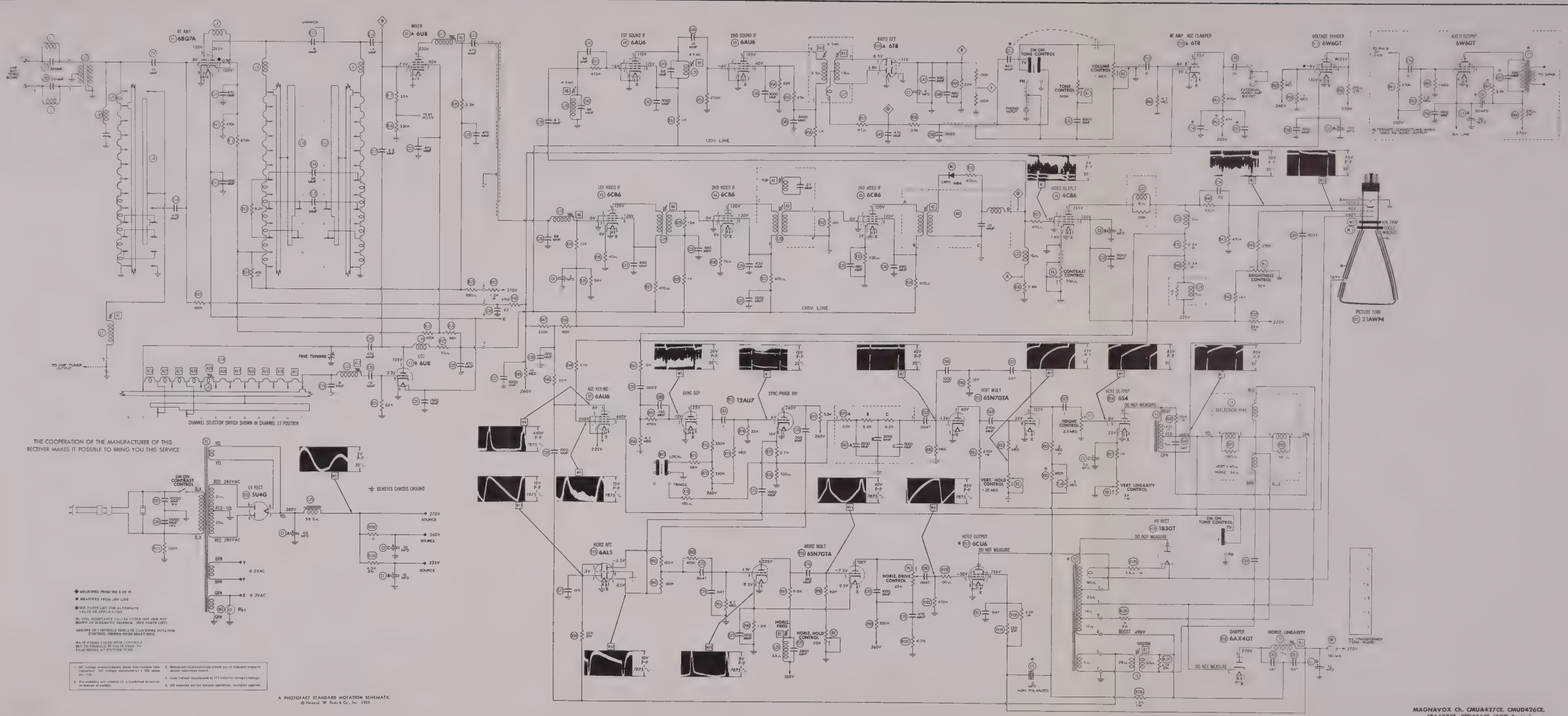
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CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
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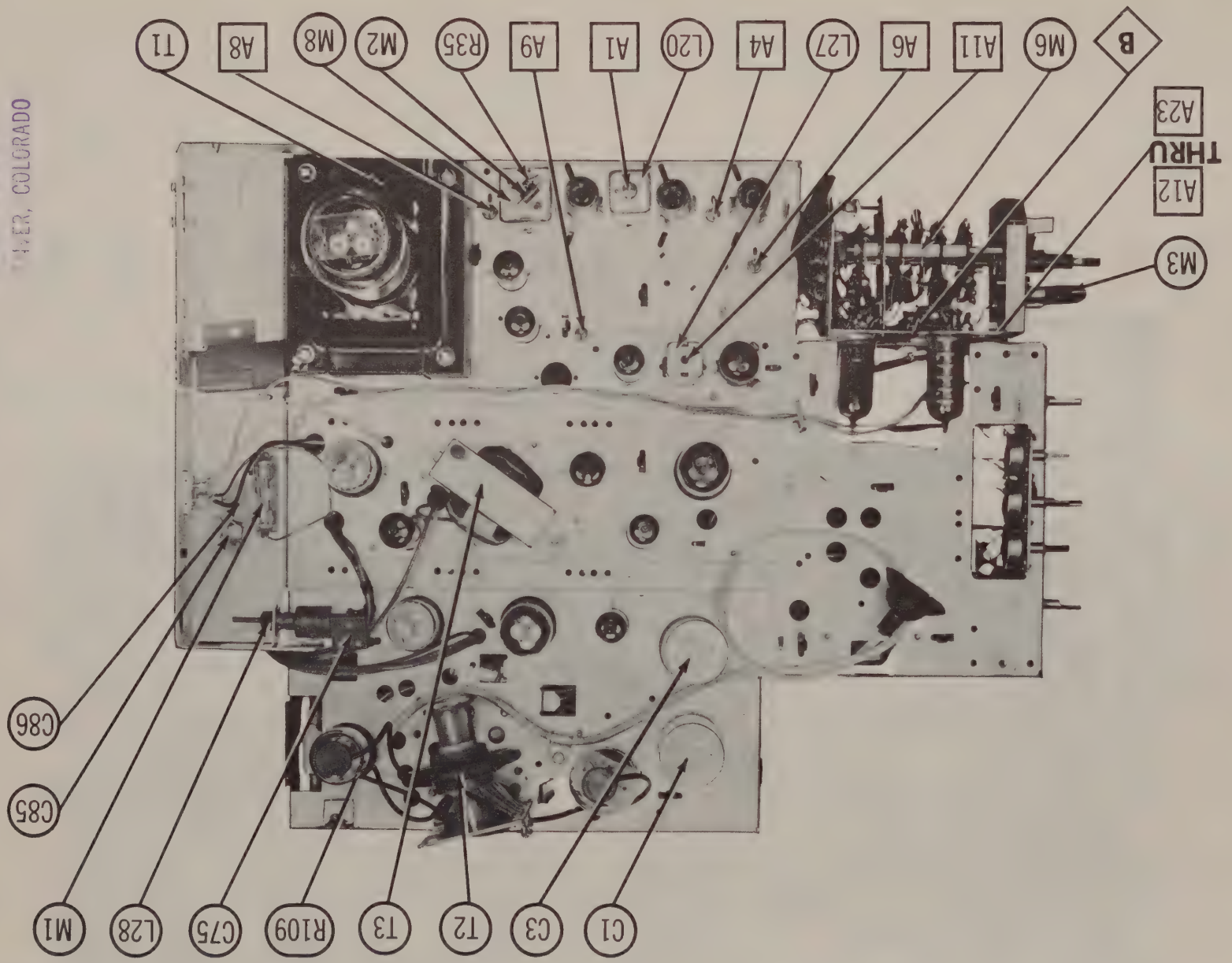
MAGNAVOX Ch. CMUA427CE, CMUD426CE, CTA427CE, CTD426CE (300 Series)

CHASSIS TOP VIEW



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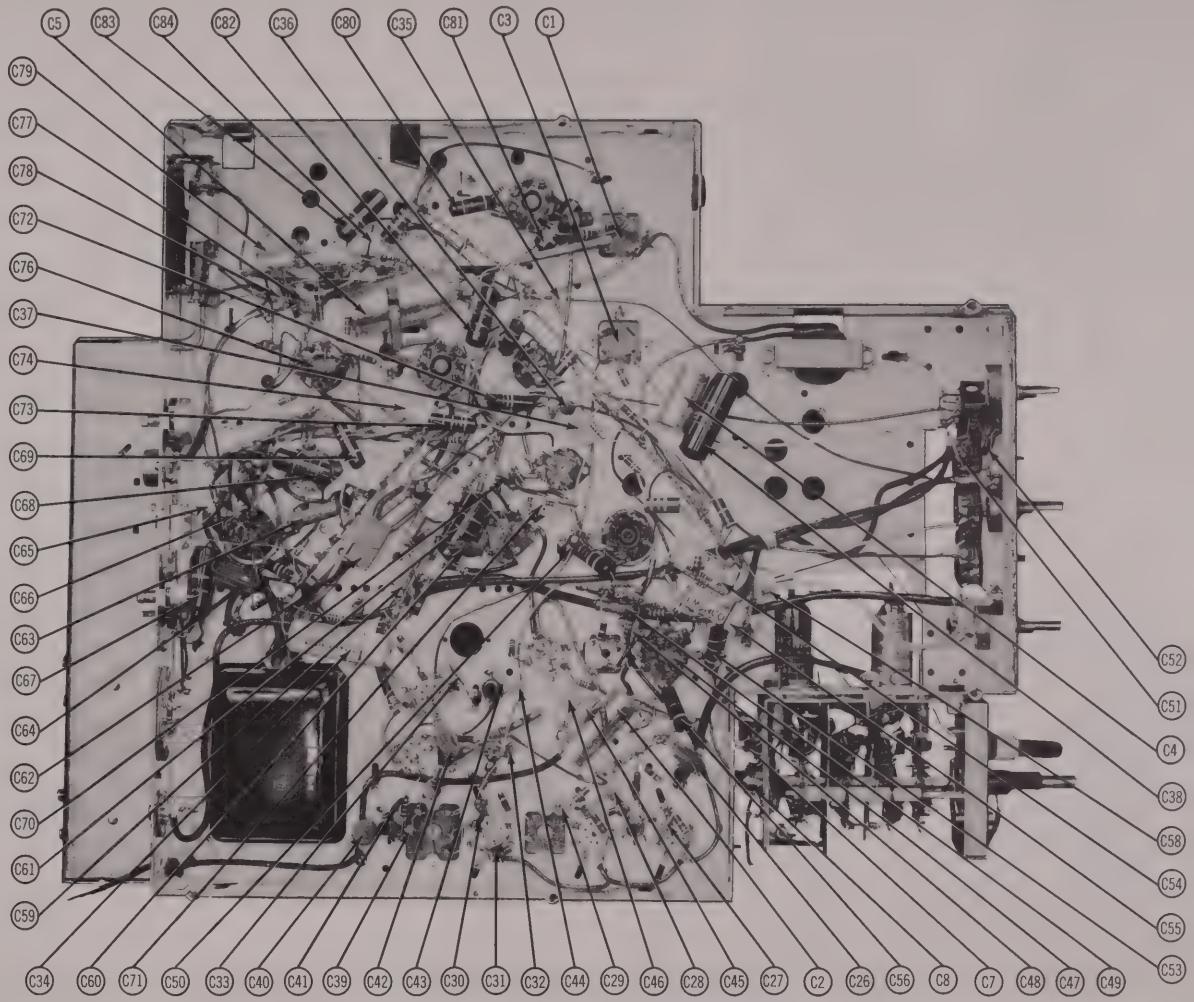

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART

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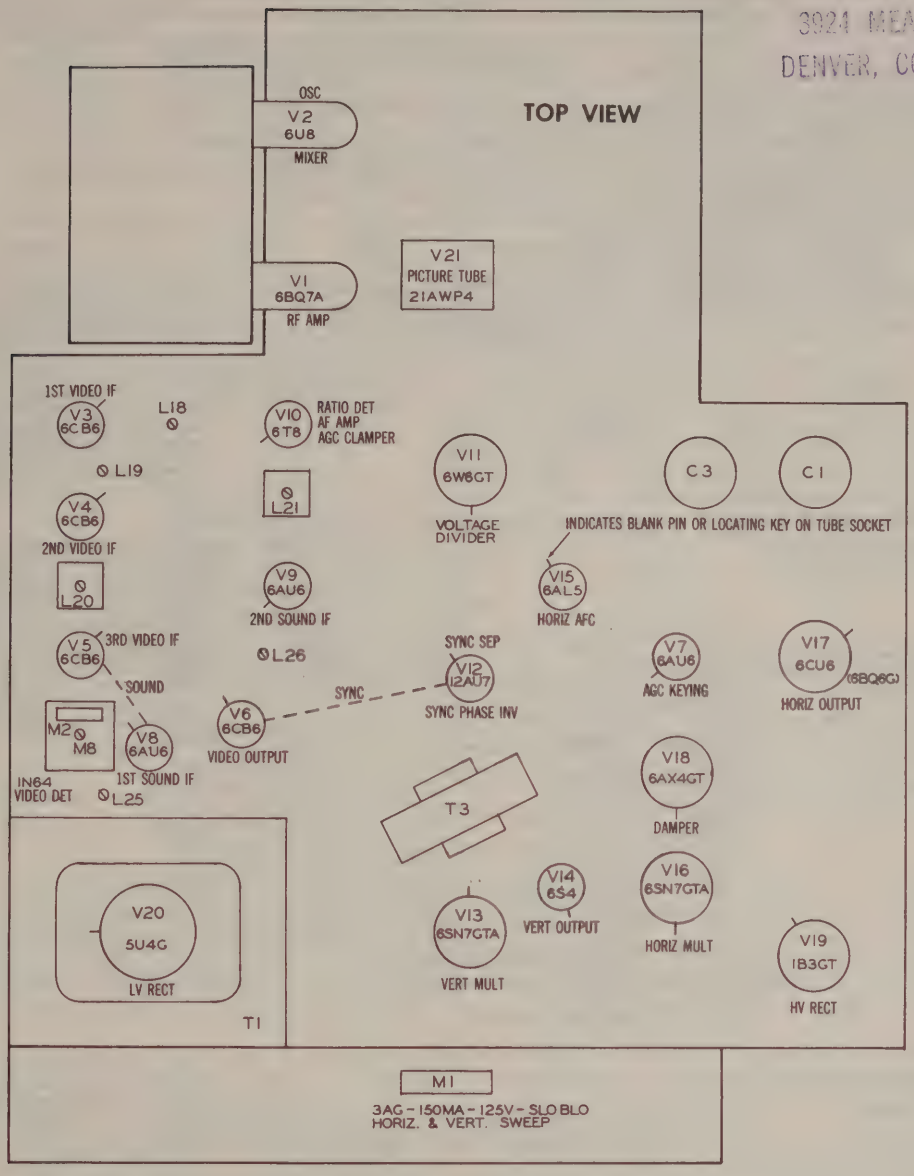


TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V20**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V11**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V7, V21**
Has pic, no sound - **V8, V9, V10, V11**
Overloaded picture - **V7, V10**

SYNC FAILURE
No vert. sync - **V12, V13**
No horiz. sync - **V12, V15, V16**
No vert. or horiz. sync - **V12**

SWEEP FAILURE
No raster, has sound - **V16, V17, V18, V19, V21, Fuse (M1)**
No vertical deflection - **V13, V14**
Poor vert. linearity or foldover - **V13, V14**
Poor horiz. linearity or foldover - **V16, V17, V18**
Narrow picture - **V16, V17, V18, V19, V20**
Vert. off freq. - **V12, V13**
Horiz. off freq. - **V12, V15, V16**

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from chassis. Do not remove the horizontal multivibrator tube (V16) to disable the high voltage.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt battery to the ungrounded side of C38.
Connect positive lead to chassis.
Connect the negative lead of a 3 volt battery to ungrounded side of C4. Connect positive lead to chassis. A single 4.5 volt battery with a-1.5 volts and -3 volt taps may be used if available.
In step 1 it is possible to obtain two settings of A1 at which maximum attenuation will occur. Correct adjustment will be indicated when 47.25MC marker is centered in the trap and the core is farthest out of the coil..
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 1 (grid) of 6CB6 (V3). Low side to chassis.	43.0MC (10MC Swp)	47.25MC	Any unused high band channel	Vert. Amp. thru 10KΩ to point Ⓐ. Low side to chassis.	A1	Couple a second signal generator to point Ⓑ to provide markers. Adjust to center 47.25MC marker in trap notch as in Fig. 1. Use enough sweep output so that trap notch is visible on scope.
2.	"	"	"	42.75MC 45.0MC 45.75MC 47.25MC	"	"	A2, A3, A4	Attenuate sweep generator output for 2 volts peak to peak on scope. Adjust for response similar to Fig. 1. Adjust A2 for maximum gain and MINIMUM tilt. A3 positions 45.75MC marker. A4 positions 42.75MC marker. Recheck A1 adjustment for correct 47.25MC trap position. See Fig. 1.
3.	"	High side to point Ⓑ. Low side to chassis.	"	"	"	"	A5, A6	Adjust A5 for maximum gain and to place 45.75MC at 50% on response curve as in Fig. 2. Adjust A6 for maximum amplitude and correct tilt. Repeat adjustments A5 and A6 (if necessary) several times to obtain response within limits in Fig. 2.
4.	Fig. 3	Thru matching network (Fig. 3) to VHF antenna terminals.	213MC (10MC Swp)	42.75MC 45.0MC	13	Vert. Amp. thru 10KΩ to point Ⓐ. Low side to chassis.		Couple marker generator loosely to pin 1 (grid) of 6CB6 (V3). Check for response similar to Fig. 2 on all VHF channels. Response should be within limits shown by dotted lines. If necessary repeat steps 1 thru 4.
			207MC (10MC Swp)	45.75MC 47.25MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			
5.	1000Ω Carbon Resistors	High side to point Ⓒ. thru 1000Ω. Low side to chassis.	43.0MC (10MC Swp)	45.75MC	UHF	"	A7	Turn tuner to UHF position. Adjust A7 to place 45.75MC marker at 50% on high frequency side of response curve (Fig.2).

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point Ⓔ to chassis. The junction of these two resistors is alignment point Ⓕ as shown on the schematic.
Remove V5 (6CB6) from its socket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.005MFD	High side to point Ⓓ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru 100KΩ to point Ⓔ. Common to chassis.	A8, A9, A10	Attenuate generator output to maintain 6.5 to 7 volts at VTVM. Adjust for maximum deflection.
7.	"	"	"	"	DC probe to point Ⓖ. Common to point Ⓕ.	All	Temporarily short out pin 1 (grid) of 6AU6 (V9) to chassis. Adjust VTVM for zero, then remove short from pin 1 of V9. Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 6 and 7. Replace V5 in its socket.

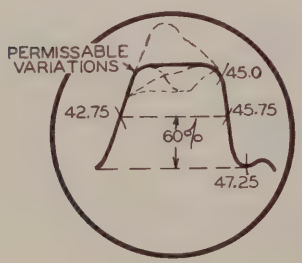


FIG.1

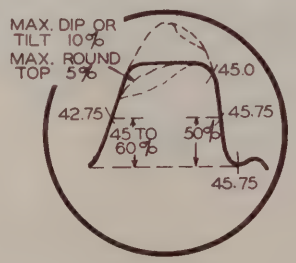


FIG.2

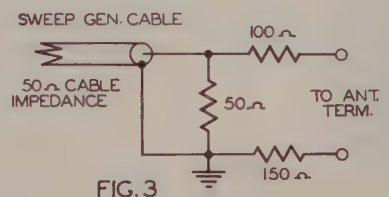


FIG.3

PROPERTY OF
L. F. BLANKENSHIP,
[illegible] ADE ST.
[illegible], COLORADO

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection. Remove V5 (6CB6) from its socket.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.005MFD	High side to point (D). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. thru 10KΩ to point (E). Low side to chassis.	A8, A9, A10	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 4.
7.	"	"	"	"	"	Vert. Amp. thru 10KΩ to point (G). Low side to chassis.	A11	Reconnect stabilizing capacitor C2. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 5. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines. Replace V5 in its socket.

VHF OSCILLATOR ALIGNMENT

Loosely couple an RF signal generator to the first video IF amplifier (V3) and tune it accurately to 45.75MC. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Fig. 3.	Thru matching network (Fig. 3) to antenna terminals.	213MC (10MC Swp)	211.25MC 45.75MC	13	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A12	Adjust so that video RF and video IF markers coincide on response curve.
9.	"	"	207MC (10MC Swp)	205.25MC 45.75MC	12	"	A13	Adjust position of loops so that video RF and video IF markers coincide on response curve.
			201MC (10MC Swp)	199.25MC 45.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 45.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 45.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 45.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 45.75MC	7		A18	
10.	"	"	85MC (10MC Swp)	83.25MC 45.75MC	6	"	A19	Adjust so that video RF and video IF markers coincide on response curve.
11.	"	"	79MC (10MC Swp)	77.25MC 45.75MC	5	"	A20	Adjust (compress or expand coils) so that video RF and video IF markers coincide on response curve.
			69MC (10MC Swp)	67.25MC 45.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 45.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 45.75MC	2		A23	

RF AND MIXER ALIGNMENT

The RF and Mixer portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

The UHF tuner has been properly aligned at the factory and is very stable. Alignment of this portion is not recommended in the field.

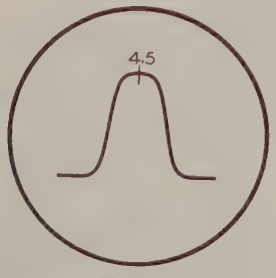


FIG. 4

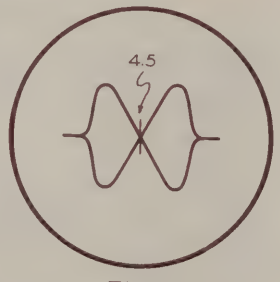
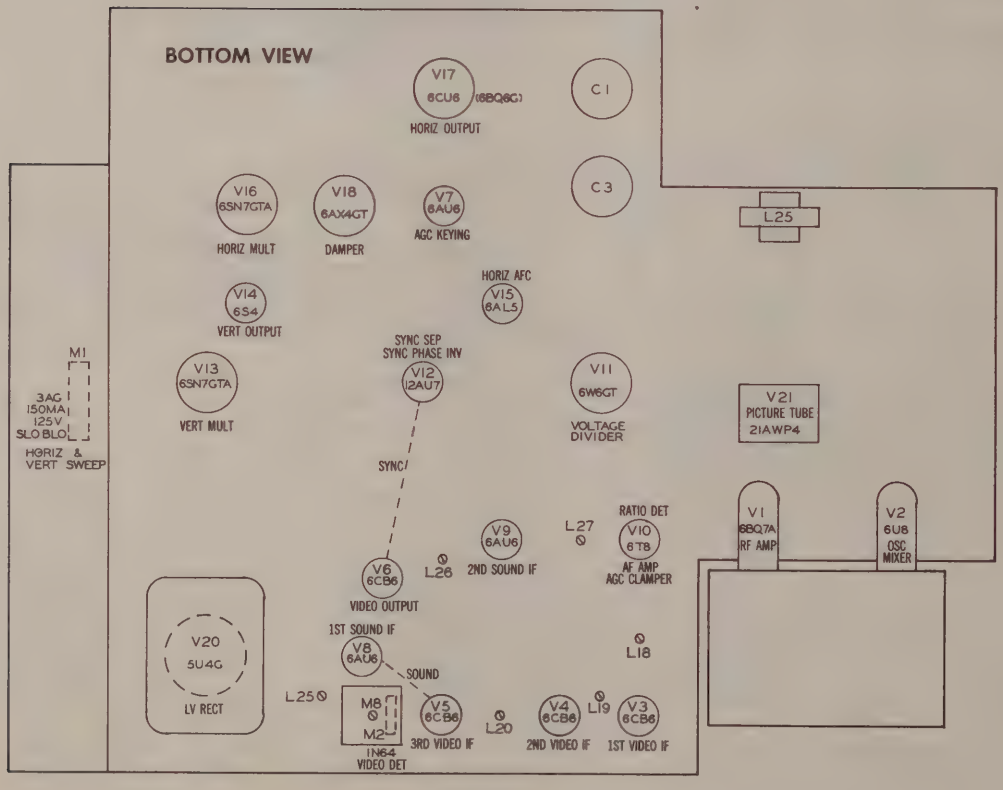


FIG. 5

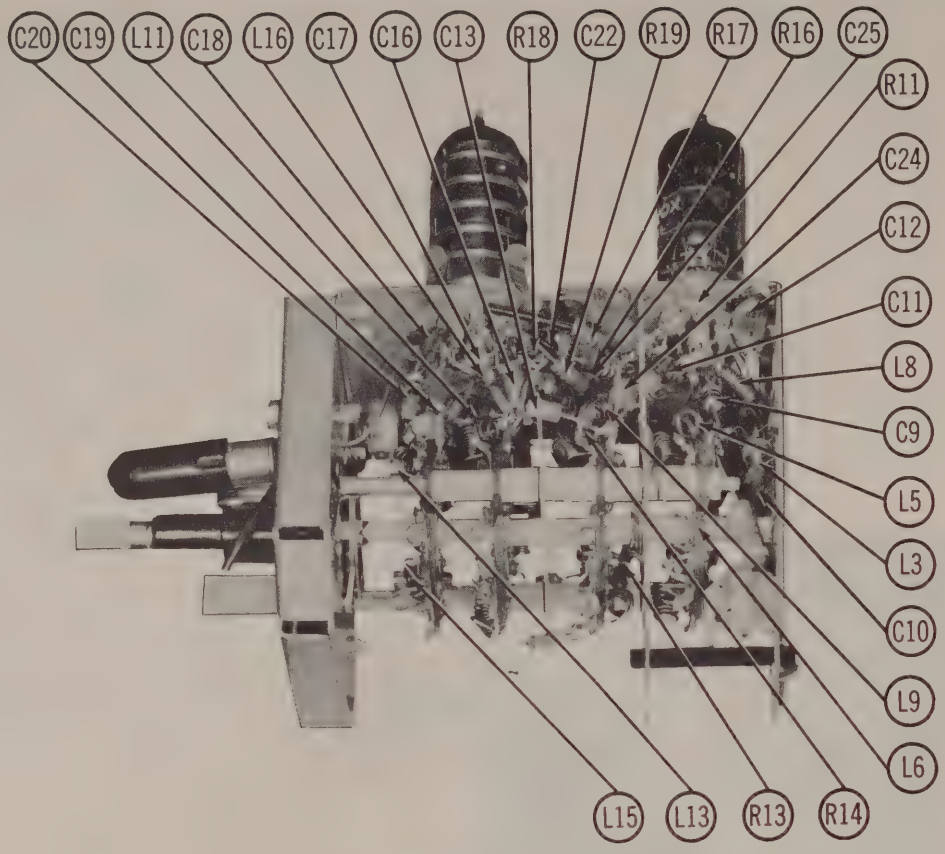
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	†1.9KΩ	250KΩ	INF	0Ω	.1Ω	INF	1Meg	0Ω	0Ω
V 2	6U8	■150Ω	360KΩ	■68KΩ	0Ω	.1Ω	†5.2KΩ	0Ω	0Ω	22KΩ
V 3	6CB6	70KΩ	47Ω	.1Ω	0Ω	■500Ω	■500Ω	0Ω		
V 4	6CB6	60KΩ	56Ω	.1Ω	0Ω	■500Ω	■500Ω	0Ω		
V 5	6CB6	.1Ω	220Ω	.1Ω	0Ω	■500Ω	■500Ω	0Ω		
V 6	6CB6	5.6KΩ	100Ω	.1Ω	0Ω	†10KΩ	†26KΩ	0Ω		
V 7	6AU6	†55KΩ	†4.3KΩ	†4.3KΩ	†4.3KΩ	260KΩ	▲15KΩ	†4.3KΩ		
V 8	6AU6	470KΩ	0Ω	.1Ω	0Ω	■1KΩ	■1KΩ	0Ω		
V 9	6AU6	270KΩ	0Ω	.1Ω	0Ω	■1KΩ	■20KΩ	0Ω		
V 10	6T8	INF	22KΩ	INF	.1Ω	0Ω	500KΩ	0Ω	4.7Meg	†500KΩ
V 11	6W6GT	TP	0Ω	†300Ω	†300Ω	600KΩ	NC	.1Ω	70KΩ	
V 12	12AU7	†400KΩ	5Meg	0Ω	0Ω	0Ω	†4.3KΩ	22KΩ	3KΩ	.1Ω
V 13	6SN7GTA	1Meg	▲270KΩ	0Ω	2.5Meg	▲1.8Meg	0Ω	.1Ω	0Ω	
V 14	6S4	NC	2KΩ	2Meg	.1Ω	0Ω	2Meg	NC	NC	▲3KΩ
V 15	6AL5	5Meg	5Meg	.1Ω	0Ω	15KΩ	0Ω	15KΩ		
V 16	6SN7GTA	80KΩ	†200KΩ	1.5KΩ	4.7Meg	†8KΩ	1.5KΩ	.1Ω	0Ω	
V 17	6CU6	NC	.1Ω	NC	†9.5KΩ	470KΩ	TP	0Ω	0Ω	TOP CAP ▲23Ω
V 18	6AX4GT	TP	NC	INF	TP	†75Ω	TP	.1Ω	0Ω	
V 19	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲615Ω
V 20	5U4G	INF	60KΩ	INF	20Ω	INF	21Ω	INF	60KΩ	
V 21	21AWP4	0Ω	†300KΩ	PIN 10 ▲1.5KΩ	PIN 11 †200KΩ	PIN 12 .1Ω				

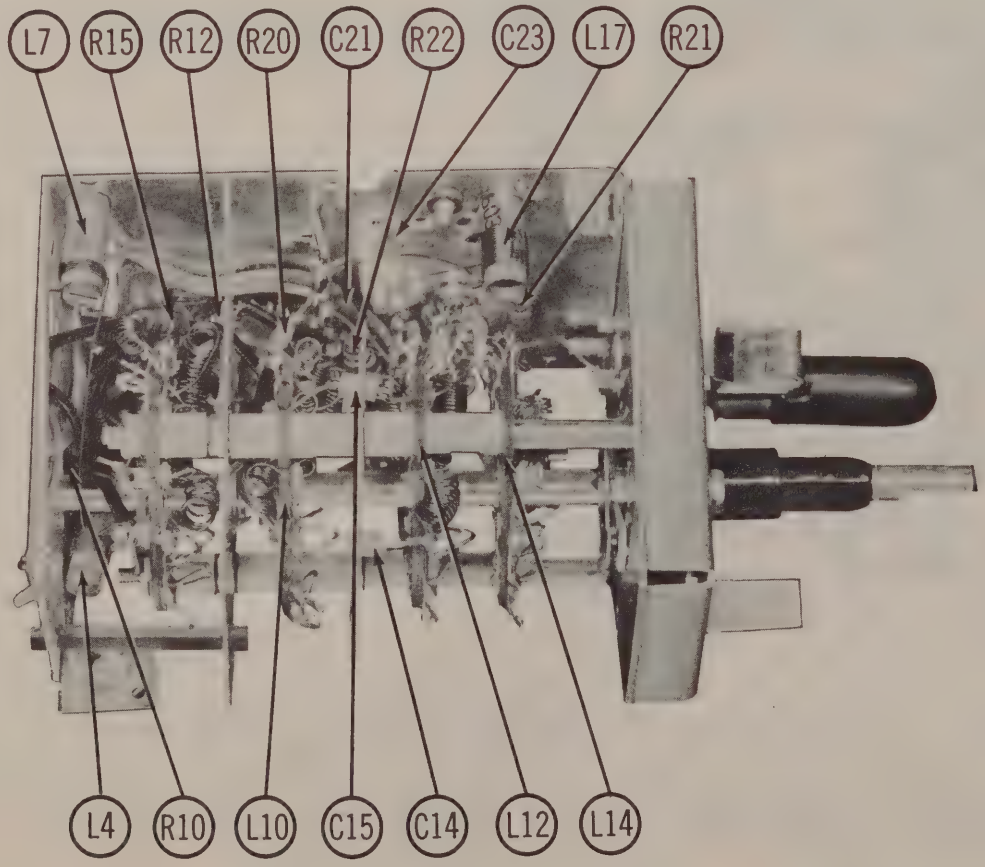
† MEASURED FROM PIN 2 OF V20.
■ MEASURED FROM 130V LINE
▲ MEASURED FROM PIN 3 OF V18.
NC - NO CONNECTION.
TP - TIE POINT.



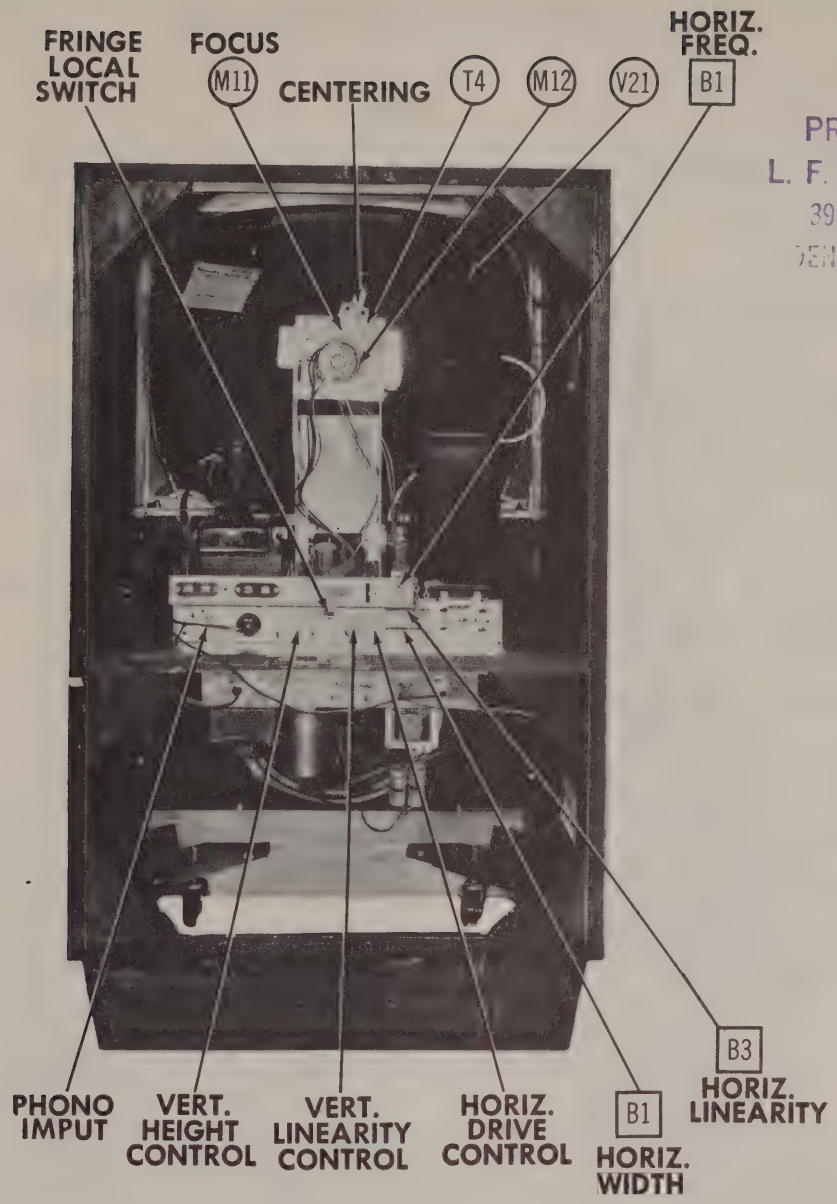
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control to its mid-range position.

Turn the horizontal frequency slug (B1) slowly clockwise while switching on and off channel until picture just loses sync. Turn B1 counter clockwise until picture just pulls into sync, then turn B1 an additional half-turn counter clockwise.

The picture should hold sync at both extreme ends of the horizontal hold control.

If necessary, readjust B1 slightly and test for sync or pull-in as above.

Adjust the horizontal drive control in a **clockwise** direction as far as possible without the presence of vertical white lines or compression near the center of the picture.

Adjust the width slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B3) for a picture that is symmetrical from left to right.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V17, V18 and V20. Check adjustments R7, B2 and B3. Check C80, C79, R104, R105 and other associated components.

DRIVE LINES

Check by substitution V17 and V18. Check adjustments R9 and B3. Check C79, C80, R101, R104, R105, T2, T4A and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V17 and V18. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V16, V17 and V18. Check C74 for open. Check L28, C75, C73, R93 and other associated components.

XMAS TREE EFFECT

Check by substitution V16, V17 and V18. Check T2 and T4 for internal arcing. Check L28, C72, C75, R94 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V13 and V14. Check waveform W9.

If Satisfactory	If Unsatisfactory
Check T3, T4B, C68, C1C, R87 and other associated components.	Check C63, C64, C67, R106, R85, R84, R83, R81 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V13 and V14. Check height and vertical linearity controls for proper operation. Check R83, T3 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V13 and V14. Check R106, R83, R84, R85, C67 and other associated components.

COMPRESSED AT TOP

Check by substitution V13 and V14. Check C1C, R87, R8, T3 and other associated components.

FOLDS

Check by substitution V13 and V14. Check C65, C67, R86, T3, T4B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Substitute V12. Check C59, C60, C61, R70, R72, R77, R75, R76 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V13. Check vertical integrator network. Check R5, R82, C63, C64 and other associated components.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V15 and V16. Check C70, C71, C73, C74, R98, R5 and other associated components.

HORIZONTAL BENDING

Check by substitution V12, V15 and V16. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V6. Check AGC network. Check L23, R39, R38, C54 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check contrast control. Check L24, L22, C54, R40 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check L24, L22, C54, R40 and other associated components.

SMEAR

Substitute V6. Check L21, L22, L24, C54, R40 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R4.

If Satisfactory	If Unsatisfactory (With External Audio Output)	If Unsatisfactory (With audio Output)
Check ratio detector and audio IF stages for component failure or change of value.	Check C51, C53, C56, R61 and R66. Check external audio output.	Check T7, R65, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A-11 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on contrast control and T1. If filaments light, substitute V20. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Substitute V20. Check B+ filter and decoupling network.

PROPERTY OF
L. F. BLANKENSHIP

MAGNAVOX Ch. CMUA427CE, CMUD426CE, CTA427CE, CTD426CE (300 Series)

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MAGNAVOX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Mixer-Osc.	6U8	6U8	9AE	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6CB6	6CB6	7CM	
V7	AGC Keying	6AU6	6AU6	7BK	
V8	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V9	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det.-AGC Clamper-AF Amp.	6T8	6T8	9E	
V11	Voltage Divider	6W6GT	6W6GT	7S	
V12	Sync Separator-Sync Phase Inv.	12AU7	12AU7	9A	
V13	Vert. Mult.	6SN7GTA	6SN7GTA	8BD	
V14	Vert. Output	6S4	6S4	9AC	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6SN7GTA	6SN7GTA	8BD	
V17	Horiz. Output	6CU6	6CU6	6AM	6BQ6G used as alternate
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: MAGNAVOX PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V21	21AWP4	21AWP4	21AWP4	21AWP4	21AWP4	12N	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGNAVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: PYRAMID PART No.	REPLACEMENT DATA: SANGAMO PART No.	NOTES
C1A	■40	350	270021-52			FP385.5	TM-4084	T-110	
B	▲10	350				TC39	TD-40-350	MT-0550	
C	50	50							
D	●70	350							
C2	4	50	270027-10			TC30	TD-4-50	MMT-0505	
C3A	▲100	200	270021-55			FP375.2	TM-4111	Q-200	
B	■5	350				TC64		MT-25100	
C	●30	350							
C4	2	50	270027-22			TC302	TD-2-50	MMT-0505	
C5	10	350	270027-26				TD-10-350NP	MT-4520 *	Note 1
								MT-4520	
C6	20	350	270027-20			TC65	TD-20-350	FM-4520	Note 2
C7	39		250175-20	TCN-39	N750K-390	NT-5439			
C8	39		250175-20	TCN-39	N750K-390	NT-5439			
C9	10		250221-127	D6-100	GP1K-100	UC-541			
C10	470		250175-8	DD-471	831-471	UC-5347			
C11	470		250175-8	DD-471	831-471	UC-5347			
C12	1500		250175-10	DD-152	801-0015	DC-5215			
C13	.18		250216-4						
C14	.56		250221-111						
C15	1.8		250221-117						
C16	15		250207-5	D6-150	GP1K-150	UC-5415			
C17	3.3		250221-121	TCZ-3R3	NP0A-3R3	ZT-5533			
C18	470		250175-8	DD-471	831-471	UC-5347			
C19	6		250088-137						
C20	10		250088-136	TCN-10	N750K-100	NT-541			
C21	1500		250175-10	DD-152	801-0015	DC-5215			
C22	470		250175-8	DD-471	831-471	UC-5347			
C23	470		250175-8	DD-471	831-471	UC-5347			
C24	470		250175-8	DD-471	831-471	UC-5347			
C25	470		250175-8	DD-471	831-471	UC-5347			
C26	68	500	250159-1043	TCZ-68	NP0-337-680	ZT-5468		KR-1468	
C27	680		250218-10	DD-681	811-681	UC-5368		K-1368	
C28	680		250218-4	DD-681	811-681	UC-5368		K-1368	
C29	430		250218-11	TCN-430	N750-334-431			KR-1343	
C30	680		250218-4	DD-681	811-681	UC-5368		K-1368	
C31	680		250218-4	DD-681	811-681	UC-5368		K-1368	
C32	1000		250175-14	DD-102	801-001	DC-521		K-1210	
C33	5000		250175-1	DD-502	811-005	DC-525		C-1250	
C34	.22	200	250202-15			PT4022	IMP4-P22	3304022	
C35	1000		250218-8	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C36	1000		250175-14	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C37	5000		250175-1	DD-502	811-005	DC-525	IMP6-D5	C-1250	
C38	.22	200	250202-15			PT4022	IMP4-P22	3304022	
C39	4.7		250221-123	TCZ-4R7	NP0A-4R7	ZT-555		KR-1550	
C40	68		250218-7	TCN-68	N750L-680	NT-5468			
C41	68		250218-7	TCN-68	N750L-680	NT-5468			
C42	5000		250175-1	DD-502	811-005	DC-525		C-1250	
C43	68		250218-7	TCN-68	N750L-680	NT-5468			
C44	10		250207-3	D6-100	GP1K-100	UC-541		K-1410	
C45	5000		250175-1	DD-502	811-005	DC-525		C-1250	
C46	5000		250175-1	DD-502	811-005	DC-525		C-1250	
C47	680		250218-4	DD-681	811-681	UC-5368		K-1368	
C48	680		250218-4	DD-681	811-681	UC-5368		K-1368	
C49	470		250088-117	DD-471	831-471	UC-5347		K-1347	
C50	.0022	400	250212-3	D6-222	GP2-333-222	PT6222	IMP6-D22	330622	
C51	800			DD-801	831-801	DC-521	IMP6-D1	K-1380	Note 3
C52	6800		250211-6	D6-682	GP2-333-682	UC-5268	IMP6-D68	C-1268	
C53	.01	400	250211-7	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C54	.1	400	250211-13	DF-104		PT401	IMP4-P1	330401	Note 4
C55	.1	400	250211-13	DF-104		PT401	IMP4-P1	330401	Note 4
C56	.01	400	250211-7	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C57	.0047	600	250201-5	D6-472	GP2-333-472	PT6247	IMP6-D47	3306247	Note 2
C58	1000		250175-14	DD-102	801-001	DC-521	IMP6-D1	K-1210	

PARTS LIST AND CAPACITOR

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACE: MAGNAVOX PART No.	REPLACE: CENTRALAB PART No.	REPLACE: ERIE PART No.
C59	.0022	400	250211-3	D6-222	GP2-333-222
C60	150	500	250159-99	D6-151	GP2K-151
C61	.1	400	250211-13	DF-104	
C62A	2000				
B	5000		♦250186-1	♦PC-100	♦1405-01
C	5000				
C63	.0047	400	250211-5	D6-472	GP2-333-472
C64	2700	500	250160-1069		
C65	.047	400	250212-7		
C66	1000		250218-8		811-102
C67	.1	400	250211-13	DF-104	
C68	.047	400	250211-11	DF-503	
C69	.0033	600	250201-4	D6-332	GP2-333-332
C70	1000		250218-8	DD-102	801-001
C71	1000		250218-8	DD-102	801-001
C72	.015	200	250212-1	DD16-153	
C73	.0047	400	250212-4	D6-472	GP2-333-472
C74	.047	200	250212-5	DF-503	
C75	3900	500	250161-5041		
C76	360	500	250159-1060		
C77	1000		250218-8	DD-102	801-001
C78	1000		250218-8	DD-102	801-001
C79	470	500	250159-1063		
C80	.0047	400	250211-5	D6-472	GP2-333-472
C81	.047	400	250211-11	DF-503	
C82	.047	400	250211-11	DF-503	
C83	.047	400	250211-11	DF-503	
C84	.1	600	250201-13	DF-104	
C85	10000	1000	250219-2	DD-103	
C86	10000	1000	250219-2	DD-103	

Note 1. Non-polarized unit.
Note 2. Used only in CTA427CE and CMUA427CE.
Note 3. Some versions use .01MFD in this application (part #2
Note 4. Used only in CTD426CE and CMUD426CE .
♦ Items C62A, C62B, C62C, R79A, R79B, R79C are combined
* Connect negative terminals together.

CONTR

ITEM No.	RATING: RESIST-ANCE	RATING: WATTS	REPLACEMENT DA: MAGNAVOX PART No.	REPLACEMENT DA: IRC PART No.	REPLACEMENT DA: CLAROSTAT PART No.
R1	500KΩ	½	220127-3		
R2A	25KΩ	½	D220129-6	Q11-120	A47-25K-S
B	Shaft		Not Req.	VQ	FS-3
R3A	50KΩ	½	D220129-3	Q11-123	A47-50K-S
B	Shaft		Not Req.	VQ	FS-3
R4A	1Meg	½	D220126-25	Q13-137	A47-1Meg-Z
B	Shaft		Not Req.	Not Req.	FS-3
R5A	1.25Meg	½	D220129-5	Q11-138	A47-1.5Meg-S
B	Shaft		Not Req.	VQ	FS-3
R6A	750Ω	½	D220126-36	Q17-105	A47-750-S
B	Shaft		Not Req.	Not Req.	FS-3
C	Switch		Not Req.	76-1	SWE-12
R7A	2.5Meg	½	220146G2	Q11-239	A47-2.5Meg-S
B	Shaft		Not Req.	Not Req.	FKS-1/4
R8	3000Ω	1	220120-3		39-3000
R9A	25KΩ	½	220146G1	Q11-120	A47-25K-S
B	Shaft		Not Req.	Not Req.	FKS-1/4

RESISTO

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MAGNAVOX PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R10	100KΩ	¼	230104-86	BTS-100K	
R11	470KΩ	¼	230104-94	BTS-470K	
R12	470KΩ	¼	230104-94	BTS-470K	
R13	8200Ω	¼	230104-73	BTS-8200	
R14	470Ω	¼		BTS-470	
R15	680Ω	¼	230104-60	BTS-680	
R16	330KΩ	¼	230104-92	BTS-330K	
R17	33KΩ	¼	230104-80	BTS-33K	
R18	68KΩ	¼	230104-84	BTS-68K	
R19	470KΩ	¼	230104-94	BTS-470K	
R20	3300Ω	¼	230104-68	BTS-3300	
R21	22KΩ	¼	230104-78	BTS-22K	
R22	150Ω	¼	230104-52	BTS-150	
R23	1200Ω	1	230105-63	BTA-1200	
R24	10KΩ 5%	¼	230094-183	BTS-10K 5%	
R25	56KΩ 5%	¼	230094-201	BTS-56K 5%	
R26	47Ω	¼	230104-46	BTS-47	
R27	470Ω	¼	230104-58	BTS-470	
R28	15KΩ 5%	¼	230094-187	BTS-15K 5%	
R29	1000Ω	¼	230104-62	BTS-1000	
R30	56Ω	¼	230104-47	BTS-56	
R31	470Ω	¼	230104-58	BTS-470	
R32	10KΩ 5%	¼	230094-183	BTS-10K 5%	
R33	220Ω	¼	230104-54	BTS-220	
R34	470Ω	¼	230104-58	BTS-470	
R35	470Ω	¼		BTS-470	
R36	5600Ω 5%	¼	230094-177	BTS-5600 5%	
R37	470Ω	¼	230104-58	BTS-470	
R38	22KΩ	1	230105-78	BTA-22K	
R39	2200Ω	1	230105-66	BTA-2200	
R40	330KΩ	¼	230104-92	BTS-330K	
R41	470KΩ	¼	230104-94	BTS-470K	
R42	18KΩ	¼	230104-77	BTS-18K	
R43	270KΩ	¼	230104-91	BTS-270K	
R44	47KΩ	¼	230104-82	BTS-47K	
R45	3300Ω 5%	1	230095-171	BTA-3300 5%	
R46	100KΩ	¼	230104-86	BTS-100K	
R47	330KΩ 5%	½	230094-219	BTS-330K 5%	

PROPERTY OF
E. F. BLANKENSHIP
[illegible] MEADE ST.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MAGNAVOX PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	5BQ7A	5BQ7A	9AJ	
V2	Mixer-Osc.	6U8	6U8	9AE	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6CB6	6CB6	7CM	
V7	AGC Keying	6AU6	6AU6	7BK	
V8	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V9	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Det. - AGC Clamper - AF Amp.	6T8	6T8	9E	
V11	Voltage Divider	6W8GT	6W8GT	7S	
V12	Sync Separator - Sync Phase Inv.	12AU7	12AU7	9A	
V13	Vert. Mult.	6SN7GTA	6SN7GTA	9BD	
V14	Vert. Output	6S4	6S4	9AC	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6SN7GTA	6SN7GTA	9BD	
V17	Horiz. Output	6C10	6C10	8AM	6BQ6G used as alternate
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: MAGNAVOX Part No.	CBS	GENERAL ELECTRIC	SYLVANIA	WESTINGHOUSE	RETMA BASE TYPE	NOTES
V31	21AWP4	21AWP4	21AWP4	21AWP4	21AWP4	1EN	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: MAGNAVOX Part No.	CENTRALAB Part No.	ERIE Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	NOTES
C1A	ø40	350	27002L-52			FP355.5	TM-4084	T-10	
B	ø10	350				TC39	TD-40-350	UT-4084	
C	50	50						MT-0560	
D	ø70	350							
C2	4	50	27002T-10			TC30	TD-4-50	MMT-0505	
C3A	ø100	300	27002L-55			FP375.2	TM-4111	Q-200	
B	ø3	350				TC64		MT-35100	
C	ø30	350							
C4	2	50	27002T-22			TC302	TD-2-50	MMT-0505	
C5	10	350	27002T-26				TD-10-350	MT-4536 ⓐ	Note 1
								MT-4520	
C6	30	350	27002T-30			TC65	TD-30-350	FM-4520	Note 2
C7	30		250178-30	TCN-39	N750K-390	NT-5439			
C8	39		250175-20	TCN-39	N750K-390	NT-5439			
C9	10		250221-127	D6-100	GP1K-100	UC-541			
C10	470		250175-8	DD-471	831-471	UC-5347			
C11	470		250175-8	DD-471	831-471	UC-5347			
C12	470		250175-8	DD-471	831-471	UC-5347			
C13	1500		250175-10	DD-352	801-0015	UC-5215			
C14	.18		250216-4						
C15	.56		250221-111						
C16	1.5		250221-117						
C17	15		250307-5	D6-150	GP1K-150	UC-5415			
C18	3.3		250221-123	TCZ-3R3	NP0A-3R3	ZT-5533			
C19	470		250175-8	DD-471	831-471	UC-5347			
C20	6		250066-127						
C21	10		250088-126	TCN-10	N750K-100	NT-541			
C22	1500		250175-10	DD-152	801-0015	UC-5215			
C23	470		250175-8	DD-471	831-471	UC-5347			
C24	470		250175-8	DD-471	831-471	UC-5347			
C25	470		250175-8	DD-471	831-471	UC-5347			
C26	470		250175-8	DD-471	831-471	UC-5347			
C27	68	500	250159-1043	TCZ-68	NP0-337-680	ZT-5468			KR-1468
C28	680		250218-10	DD-681	811-681	UC-5368			K-1368
C29	680		250218-5	DD-681	811-681	UC-5368			K-1368
C30	430		250218-11	TCN-430	N750-334-431				KR-1343
C31	680		250218-4	DD-681	811-681	UC-5368			K-1368
C32	680		250218-4	DD-681	811-681	UC-5368			K-1368
C33	1000		250178-14	DD-102	801-001	DC-521			K-1210
C34	5000		250178-1	DD-502	811-005	DC-535			C-1250
C35	.33	200	250203-15			PT4022	PMP4-P23		3304022
C36	1000		250178-15	DD-102	801-001	DC-521	PMP6-D1		K-1210
C37	1000		250178-14	DD-102	801-001	DC-521	PMP6-D1		K-1210
C38	5000		250175-1	DD-502	811-005	DC-535	PMP6-D5		C-1250
C39	.22	200	250202-15			PT4022	PMP4-P23		3304022
C40	4.7		250221-123	TCZ-4R7	NP0A-4R7	ZT-555			KR-1550
C41	68		250218-7	TCN-68	N750L-680	NT-5468			
C42	68		250218-7	TCN-68	N750L-680	NT-5468			
C43	5000		250178-1	DD-502	811-005	DC-535			C-1250
C44	68		250218-7	TCN-68	N750L-680	NT-5468			
C45	10		250307-3	D6-100	GP1K-100	UC-541			K-1410
C46	5000		250178-1	DD-502	811-005	DC-535			C-1250
C47	5000		250178-1	DD-502	811-005	DC-535			C-1250
C48	680		250218-4	DD-681	811-681	UC-5368			K-1368
C49	680		250218-4	DD-681	811-681	UC-5368			K-1368
C50	470		250088-117	DD-471	831-471	UC-5347			K-1347
C51	.0022	400	250212-3	D6-222	GP2-333-222	PT6222	PMP6-D22	330622	
C52	500			DD-501	831-501	DC-521	PMP6-D1	K-1250	
C53	6800		250211-6	D6-682	GP2-333-683	UC-5368	PMP6-D68	C-1268	Note 3
C54	.01	400	250211-7	D6-103	GP2-333-103	PT411	PMP4-S1	330411	
C55	.1	400	250211-13	DF-104		PT401	PMP4-P1	330401	Note 4
C56	.1	400	250211-13	DF-104		PT401	PMP4-P1	330401	Note 4
C57	.01	400	250211-7	D6-103	GP2-333-103	PT411	PMP4-S1	33041	
C57	.0047	600	250201-5	D6-472	GP2-333-472	PT6347	PMP6-D47	3306347	Note 2
C58	1000		250178-14	DD-103	801-001	DC-521	PMP6-D1	K-1210	

PARTS LIST AND DESCRIPTIONS
CAPACITORS (cont)

ITEM No.	RATING: CAP	VOLT	REPLACEMENT DATA: MAGNAVOX Part No.	CENTRALAB Part No.	ERIE Part No.	MALLORY Part No.	PYRAMID Part No.	SANGAMO Part No.	NOTES
C59	.0022	400	250211-3	D6-222	GP2-333-222	PT6222	PMP6-D22	3306222	
C60	100	500	250159-09	D6-101	GP3K-151	MC6268		K-1218	
C61	.1	400	250212-13	DF-104		PT401	PMP4-P1	330401	
C62A	3000					DC-533	PMP6-D3	C-1230	
B	5000		ø250168-1	ø2C-100	ø1405-01	DC-535	PMP6-D5	C-1250	
C	5000					DC-535	PMP6-D5	C-1250	
C63	.0047	400	250211-5	D6-472	GP2-333-472	PT6347	PMP6-D47	3306347	
C64	2700	500	250160-1069					CR-1227	
C65	.047	400	250212-7						
C66	1000		250218-8			811-102	MCB255	KH-1210	
C67	.1	400	250211-13	DF-104		PT401	PMP4-P1	330401	
C68	.047	400	250211-11	DF-503		PT4147	PMP4-S47	3304147	
C69	.0033	600	250201-4	D6-332	GP2-333-332	PT6333	PMP6-D33	3306333	
C70	1000		250218-8	DD-102	801-001	DC-521	PMP6-D1	K-1210	
C71	1000		250218-8	DD-102	801-001	DC-521	PMP6-D1	K-1210	
C72	.015	200	250212-1	DD16-153		PT615	PMP6-S15	3306515	
C73	.0047	400	250212-6	D6-472	GP2-333-472	PT6347	PMP6-D47	3306347	
C74	.0047	400	250212-5	DF-503		PT4147	PMP4-S47	3304147	
C75	3900	500	250161-5041			MCB463		CR-1233	
C76	360	500	250159-1060					KH-1338	
C77	1000		250218-8	DD-102	801-001	DC-521	PMP6-D1	K-1210	
C78	1000		250218-5	DD-102	801-001	DC-521	PMP6-D1	K-1210	
C79	470	500	250159-1063			MCE245		KH-1347	
C80	.0047	400	250211-5	D6-472	GP2-333-472	PT6347	PMP6-D47	3306347	
C81	.047	400	250211-11	DF-503		PT4147	PMP4-S47	3304147	
C82	.047	400	250211-11	DF-503		PT4147	PMP4-S47	3304147	
C83	.047	400	250211-11	DF-503		PT4147	PMP4-S47	3304147	
C84	.1	600	250201-13	DF-104		PT601	PMP6-P1	330601	
C85	10000	1000	250218-3	DD-103					
C86	10000	1000	250218-2	DD-103					

Note 1. Non-polarized unit.
Note 2. Used only in CTA427CR and CMUA427CE.
Note 3. Some versions use .01MFD in this application (part #250211-7).
Note 4. Used only in CTD426CE and CMUD426CE.
* Items C62A, C62B, C62C, R75A, R75B, R75C are combined in one unit.
* Connect negative terminals together.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: MAGNAVOX Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
R1	500KΩ		220127-3					Tone, TV-Phono switch
R2A	25KΩ	½	D220126-5	Q11-120	A47-25K-B	AB-36	U29	Horiz. Hold
B	Shaft		Not Req.	VQ	FB-3	AK-8	Not Req.	Attach to R2A
R3A	50KΩ	½	D220126-3	Q11-133	A47-50K-B	AB-31	U35	Brightness
B	Shaft		Not Req.	VQ	FB-3	AK-8	Not Req.	Attach to R3A
R4A	1MEG	½	D220126-25	Q13-137	A47-1Meg-Z	B-70	U33	Volume
B	Shaft		Not Req.	Not Req.	FB-3	Not Req.	Not Req.	Attach to R4A
R5A	1.25Meg	½	D220126-5	Q11-138	A47-1.5Meg-S	AB-742	U35	Vert. Hold
B	Shaft		Not Req.	VQ	FB-3	AK-8	Not Req.	Attach to R5A
R6A	750Ω	½	D220126-36	Q11-105	A47-750-B	AB-415	U-3	Contrast
B	Shaft		Not Req.	Not Req.	FB-3	AK-3	Not Req.	Attach to R6A
C	Switch		Not Req.	Not Req.	76-1	SWK-12	Not Req.	Attach to R6A
R7A	2.5Meg	½	220146G2	Q11-239	A47-2.5Meg-S	AB-83	SU-505	Height
B	Shaft		Not Req.	Not Req.	FZ8-1/4	AK-1	Not Req.	Attach to R7A
R8	3000Ω	1	220120-3	Q11-120	39-3000			Vert. Linearity (wire-wound)
R8A	35KΩ	½	220146G1	Q11-120	A47-35K-B	AB-36	SU-39	Horiz. Drive
B	Shaft		Not Req.	Not Req.	FZ8-1/4	AK-1	Not Req.	Attach to R8A

RESISTORS

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: MAGNAVOX Part No.	IRC Part No.	NOTES
R10	100KΩ	½	230104-86	BTH-100K	
R11	470KΩ	½	230104-94	BTS-470K	
R12	470KΩ	½	230104-94	BTS-470K	
R13	8200Ω	½	230104-73	BTS-8200	
R14	470Ω	½		BTS-470	
R15	680Ω	½	230104-80	BTS-680	
R16	330KΩ	½	230104-92	BTS-330K	
R17	33KΩ	½	230104-80	BTS-33K	
R18	68KΩ	½	230104-84	BTS-68K	
R19	470KΩ	½	230104-94	BTS-470K	
R20	3300Ω	½	230104-65	BTS-3300	
R21	22KΩ	½	230104-78	BTS-22K	
R22	150Ω	½	230104-52	BTS-150	
R23	1000Ω	½	230105-63	BTA-1Kx	
R24	10KΩ 5%	½	230094-183	BTS-10K 5%	
R25	56KΩ 5%	½	230094-101	BTS-56K 5%	
R26	47Ω	½	230104-48	BTS-47	
R27	470Ω	½	230104-58	BTS-470	
R28	15KΩ 5%	½	230094-187	BTS-15K 5%	
R29	1000Ω	½	230104-62	BTS-1000	
R30	56Ω	½	230104-47	BTS-56	
R31	470Ω	½	230104-58	BTS-470	
R32	10KΩ 5%	½	230094-183	BTS-10K 5%	
R33	22KΩ	½	230104-54	BTS-220	
R34	470Ω	½	230104-58	BTS-470	
R35	470Ω	½		BTS-470	
R36	56000Ω 5%	½	230094-177	BTS-5600 5%	
R37	470Ω	½	230104-58	BTS-470	
R38	22KΩ	1	230105-78	BTA-22K	
R39	3300Ω	½	230105-66	BTA-3300	
R40	330KΩ	½	230104-92	BTS-330K	
R41	470KΩ	½	230104-94	BTS-470K	
R42	1MEG	½	230104-77	BTS-1MEG	
R43	270KΩ	½	230104-91	BTS-270K	
R44	47KΩ	½	230104-82	BTS-47K	
R45	3300Ω 5%	1	230095-171	BTA-3300 5%	
R46	100KΩ	½	230104-86	BTS-100K	
R47	330KΩ 5%	½	230094-219	BTS-330K 5%	
R48	470KΩ	½	230104-94	BTS-470K	
R49	10MEG 5%	½	230094-355	BTS-10MEG 5%	
R50	100KΩ 5%	½	230094-207	BTS-100K 5%	
R51	470KΩ	½	230104-94	BTS-470K	
R52	100KΩ	½	230104-62	BTS-1000	
R53	270KΩ	½	230104-91	BTS-270K	
R54	33KΩ	½	230104-80	BTS-33K	
R55	47KΩ	½	230104-82	BTS-47K	
R56	1000Ω	½	230104-62	BTS-1000	
R57	47Ω	½	230104-48	BTS-47	
R58	33KΩ	½	230104-80	BTS-33K	
R59	22KΩ	½	230104-78	BTS-33K	
R60	4.7MEG	½	230104-106	BTS-4.7MEG	
R61	470KΩ	½	230104-94	BTS-470K	
R62	47KΩ	½		BTS-47K	Note 1
R63	1.5MEG	½	230094-333	BTS-1.5MEG 5%	
R64	1MEG 5%	½	230094-221	BTS-1MEG 5%	
R65	3300Ω	½	230104-65	BTS-3300	Note 1
R66	270Ω	½	230105-55	BTA-270	
R67	10KΩ	½	230104-74	BTS-10K	
R68	4.7MEG	½	230104-106	BTS-4.7MEG	
R69	470KΩ	½	230104-94	BTS-470K	
R70	330KΩ	½	230104-92	BTS-330K	
R71	68KΩ	½	230104-84	BTS-68K	
R72	330KΩ	½	230104-92	BTS-330K	
R73	1MEG	½	230104-98	BTS-1MEG	
R74	22KΩ	½	230104-78	BTS-22K	
R75	270MΩ 5%	½	230094-169	BTS-270M 5%	
R76	330Ω	½	230104-56	BTS-330	
R77	3300Ω 5%	½	230094-171	BTS-3300 5%	
R78	150Ω	½	230104-53	BTS-150	
R79A	22KΩ			BTS-22K	
B	8200Ω		ø250168-1	BTS-8200	
C	8200Ω			BTS-8200	
R80	1MEG	½	230104-98	BTS-1MEG	
R81	270KΩ	½	230105-51	BTS-270K	

RESISTORS (cont)

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: MAGNAVOX Part No.	IRC Part No.	NOTES
R82	1.5MEG	½	230104-100	BTS-1.5MEG	
R83	1.2MEG	1	230105-99	BTA-1.2MEG	
R84	1.5MEG	½	230104-100	BTS-1.5MEG	
R85	950KΩ	½	230130-1		Note 2
R86	12KΩ	½	230104-75	BTS-12K	
R87	1000Ω	½	230104-62	BTS-1000	
R88	150KΩ	½	230106-88	BTA-150K	
R89	560Ω	½		BTS-560	
R90	56Ω	½		BTS-560	
R91	100KΩ	1	230104-86	BTS-100K	
R92	100KΩ	2	230104-86	BTH-100K	
R93	470KΩ	2	230104-94	BTH-470K	
R94	15KΩ	2	230106-76	BTH-15K	
R95	4.7MEG	2	230104-106	BTH-4.7MEG	
R96	1500Ω 5%	2	230094-163	BTH-1500 5%	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: MAGNAVOX Part No.	IRC Part No.	NOTES
R97	6800Ω	½	230104-72	BTS-6800	
R98	82KΩ	½	230104-85	BTS-82K	
R99	200KΩ 5%	½	230094-214	BTS-200K 5%	
R100	100Ω	½	230104-52	BTS-1000	
R101	4700Ω	½	230104-70	BTS-4700	
R102	470KΩ	½	230104-94	BTS-470K	
R103	10Ω	½	230104-50	BTS-100	
R104	15KΩ	2	230106-76	BTH-15K	
R105	22KΩ	1	230105-78	BTA-22K	
R106	1500Ω	1	230105-64	BTA-1500	
R107	4700Ω	2	230106-70	BTH-4700	
R108	1000Ω	2	230106-62	BTH-1000	
R109	3.9Ω	1	230107-3		
R110	4300Ω	½	340071-1		
R111	130KΩ	½	230130-1	BTS-130K	

* Items R78A, R78B, R78C, C62A, C62B and C62C are combined in one unit.
Note 1. Not used in some versions.
Note 2. Temperature compensation resistor.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: MAGNAVOX Part No.	Halldorson Part No.	Merit Part No.	RCA TYPE No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T3	117VAC ⓐ 1.5A	580VCT .310ADC	5VAC ⓐ 3A	300072-1		P-3837		P-8333		
	SEC 3	SEC 4	SEC 5							
	6.3VAC ⓐ 3A	6.3VAC ⓐ 9.4A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: MAGNAVOX Part No.	Halldorson Part No.	Merit Part No.	RCA Part No.	Ram Part No.	Stancor TYPE No.	Thordarson Part No.	Triad Part No.
T2	Horiz. Output Trans.	300580-1	FB414 ②	HVO-9 ②	23271 *	X098 *	A-8220 *	FLY-28 *	D-35 *
		300604-1 ①	RF800 * ②	MWC-1 *			A-8220 *		
T3	Vert. Output Trans.	320087-1	Z1806	A-3039	22671	V312	A-8141	28S54	A-104X
T4A	Yoke-Horiz. (DR. 5MH)	360587-1	DF-505 ①	MDF-73 ②	222D1 ②	Y70F18/43 ②	DY-11A ②	Y-9 ①	Y-22-1 ①
B	Vert. (37MH)								
T5	Horiz. Lin. Coil (.7-.8 5MH)	360586-1	RF800 ③ ④	MWC-8 ③	11R1 ③	20R15 ③	WC-8 ③	WC-32 ③	WC-12 ③ ④
T6A	Width Series Coil (.35-2.3MH)	360565-1						WC-34	
B	Parallel Coil (6.4-29MH)								

① Alternate horizontal output transformer.
② Drill new mounting hole(s).
③ Use original horizontal yoke damping network.
④ Use original yoke damping network.
⑤ Drill new mounting hole or use original slider and core.
⑥ Connect to terminals #3 and #4.
⑦ Connect to coded blue and green terminals.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
1	2	9	10	1	5	1	10
3	8	7	8	3	3	3	6
T	7	See Note ⑥	See Note ⑥	T	6	T	See Note ⑥
4	6	1	3	4	1	4	3
5	Term. #1 of RF800	Red Term. of MWC-1	2	6	9	5	1
7	Term. #2 of RF800	Blue Term. of MWC-1	1	7	7	7	1
Connect Width Coil Across	Term. #3 & #4 of RF800 Across 5 & 7	Orange & Black terms. of MWC-1 across 3 & 1	2 & 1	5 & 7	7 & 8		2 & 1
Special Notes	⑤	⑤ ⑦	⑤				⑤ ⑩

① Connect a 47MMF or 56MMF capacitor from open end of R106 (original terminal "T" connection) to terminal #3 of yoke (Red lead).
⑤ Remove original width coil and jumper R107. If the picture is out of phase, reverse primary or secondary of replacement width coil.
⑩ Jumper terminals #9 and "T".

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: MAGNAVOX Part No.	Halldorson Part No.	Merit Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T7	3.6KΩ	3Ω to 6Ω	320068-1 ①	Z1010	A-3018	A-3825 ②	26S50	S-4X ③	① Used in sets having audio output. ② Drill one new mounting hole.

MAGNAVOX Ch. CMUA427CE, CMUD426CE, CTA427CE, CTD426CE (300 Series)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	IF Trap Coil	0Ω						
L2	IF Trap Coil	0Ω						
L3	VHF Ant. Trans.	0ΩCT	0Ω	360490-2				
L4	IF Trap Coil	.22Ω		360601-8				.47 Microhenries, IRC part #CLA
L5	VHF Ant. Coil	0Ω						Channel 13
L6	VHF Ant. Coils	0Ω						
L7	UHF IF Coil	0Ω		360602-1				
L8	Neut. Coil	0Ω						
L9	VHF RF Coil	0Ω						Channel 13
L10	VHF RF Coils	0Ω						
L11	VHF Mixer Grid Coil	0Ω						Channel 13
L12	VHF Mixer Grid Coils	0Ω						
L13	VHF Osc. Coil	0Ω						Channel 13
L14	VHF Osc. Coils	0Ω						
L15	VHF Osc. Coil	0Ω						Channel 6
L16	RF Coil	0Ω		360601-9				
L17	Conv. Plate	0Ω		360603-1				
L18	1st. Video IF	.1Ω		360540-1	17-4524 *	TV-130 ■	6219 ■	
L19	2nd. Video IF	.1Ω	.1Ω	360581-1	17-4522	TV-130	6219	
L20	3rd. Video IF	.1Ω	.1Ω	360582-1		TV-128 ▲	6233 ▲	Includes 47.25MC trap
L21	Shunt Peaking Coil	10Ω		360443-28	19-3500		6174	450 Microhenries
L22	Series Peaking Coil	9Ω		360443-31	19-3300 ▲	TV-191	6155 ▲	340 Microhenries, wound on 100KΩ resistor
L23	Shunt Peaking Coil	10Ω		360443-30	19-3300	TV-185	6155	310 Microhenries
L24	Shunt Peaking Coil	5Ω		360443-29	19-3250 ♦	TV-185 ♦	6181 ♦	240 Microhenries, wound on 10KΩ resistor
L25	1st. Sound IF	.4Ω		360584-1	20-1005	TV-151	1469	
L26	2nd. Sound IF	.4Ω		360584-1	17-3400	TV-151	1469	
L27	Ratio Det.	5.5Ω	1.8Ω	360588-1	17-3497	TV-115	6205	Tertiary winding -.6Ω
L28	Horiz. Osc.	53Ω		360579-1	19-1576	TV-163	6210	

* Use winding with 56KΩ resistor.
■ Use one winding only.
▲ Use adaptor plate.
▲ Parallel with 100KΩ resistor.
♦ Parallel with 10KΩ resistor.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L29	.210ADC	38.5Ω	.43 HY	B320058-1		C-2974①	C-2327 ①	26C44 ①	C-17X ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MAGNAVOX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	150MA 125V	180157-24		313.150 (3AG-S/B-150MA)	357001	MDL 15/100	H405

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		MAGNAVOX PART No.	SYLVANIA PART No.	
M2	1N64		1N60 or 1N132	Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Dial Light		#47 - VHF Channel Indicator - Models CTD426CE, CTA427CE
M4	Dial Light		#47 - VHF Channel Indicator - Models CMU426CE, CMUA427CE
M5	Dial Light		#47 - UHF Channel Indicator - Models CMU426CE, CMUA427CE
M6	Tuner	700458-1	VHF - All models
M7	Tuner	700459-1	UHF - Models CMU426CE, CMUA427CE
M8	Video Det. Assy.	360607-1	Includes M2, R35, coils and capacitor
M9	Switch	160247-1	VHF-UHF (Rotary-wafer type) Models CMU426CE, CMUA427CE
M10	Switch	160229-1	Fringe - Local (DPDT - Slide type)
M11	Focus Magnet	360569-1	Includes centering device
M12	Ion Trap	360492-2	

PROPERTY OF
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MEADE ST.
COLORADO

TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V18 and V19. Check fuse, M1. Check waveform W16.

If Satisfactory	If Unsatisfactory
Check T2, T4A, T5, T6, C82, C83, C81, R104, R105 and other associated components.	Check L28, C75, C76, C77, C80, R100, R97 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V17, V18 and V20. Check adjustments R9, B2 and B3. Check C80, R104, R105, T2, T4A and other associated components.

BLOOMING

Check by substitution V17, V18, V19 and V20. Check R104, R105, C80 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V11. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

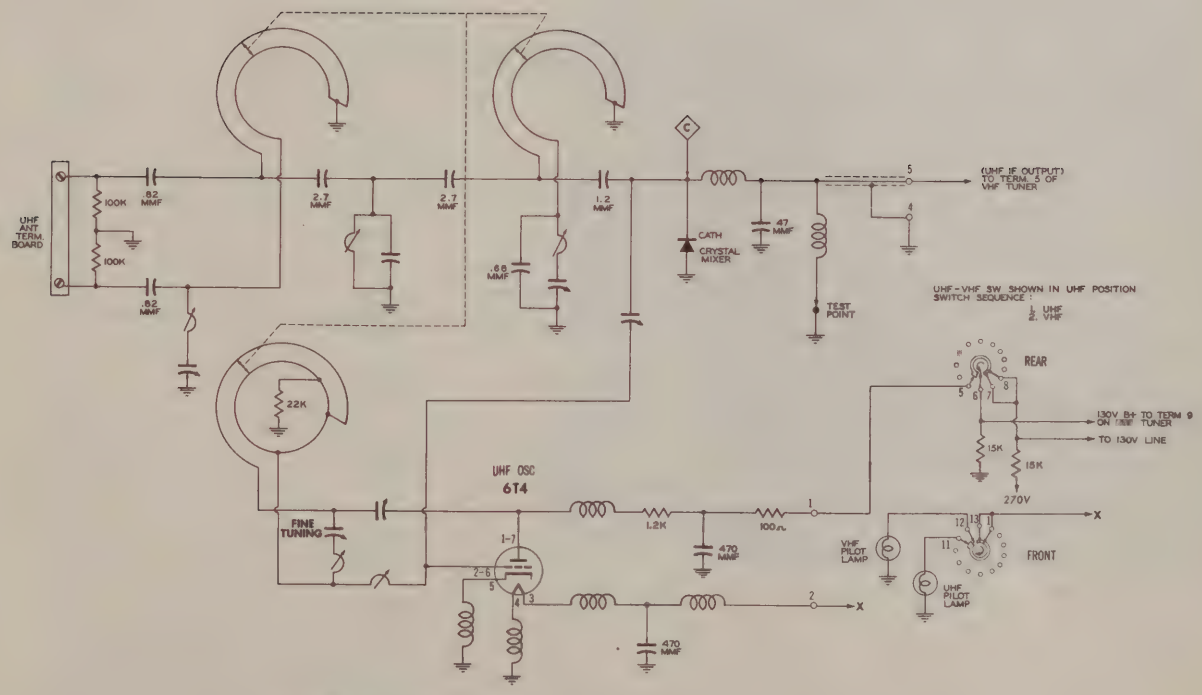
KEYSTONE EFFECT

Check T4 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



UHF TUNER NO. 700459 USED WITH MODELS CMU 426CE AND CMUA27CE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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UHF TUNER SCHEMATIC

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

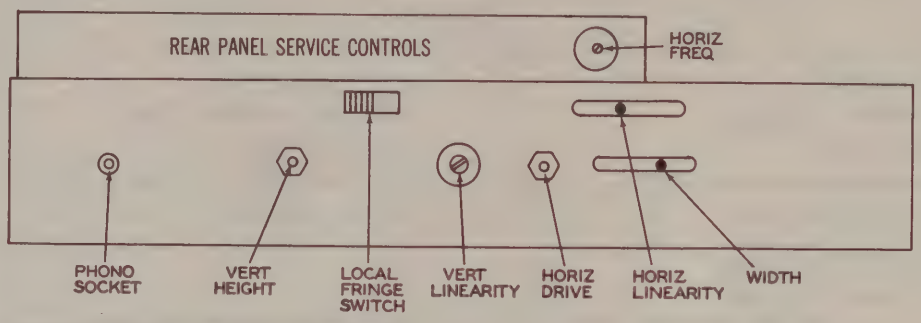
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass, remove 2 wood screws holding metal strip at the bottom of safety glass. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control to its mid-range position and adjust the horizontal frequency coil slug (L28) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L27) located on top of chassis.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 8 push-on type control knobs from front panel of cabinet.
2. Remove 7 wood screws and 1 metal screw. Remove rear cover.
3. Disconnect speaker plugs.
4. Remove 5 chassis bolts. Remove chassis.
5. Remove 8 speaker nuts. Remove 2 speakers.

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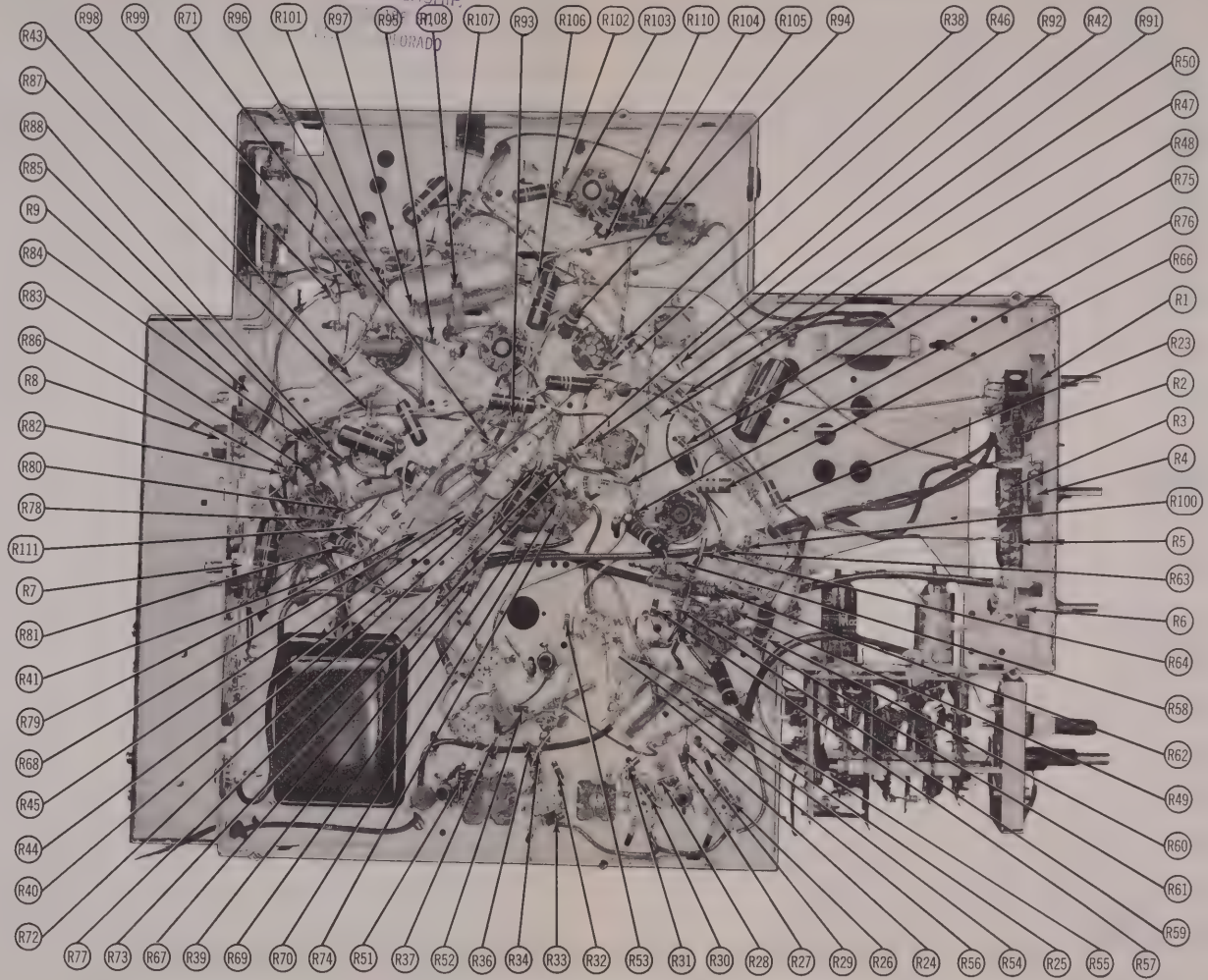

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

MOTOROLA
MODELS 395, 395-12

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MOTOROLA
MODELS 395, 395-12

TRADE NAME	Motorola Models 395 (6 Volt), 395-12 (12 Volt)
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated AM Superheterodyne Universal Automobile Receiver
TUBES (Six)	Types 6BD6 RF Amp., 6BE6 Conv., 6BD6 IF Amp., 6CR6 Det.-AVC-AF Amp., 6AQ5 Output, 6X4 Rectifier or 12V Equivalents
POWER SUPPLY	6 (or) 12 Volt Storage Battery
RATING	2.8 Amp. @ 12.6Volts DC 5.6 Amp. @ 6.3Volts DC
TUNING RANGE—BROADCAST	540-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400~Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. Before proceeding with step 2 back tuner cores completely out of coil. See Fig. 1.
2.	See Fig. 2	Thru dummy antenna to antenna receptacle	1610KC	"	"	A5, A6, A7	Adjust for maximum output.
3.	"	"	1400KC	Set 29/64" from high freq. end stop.	"	A8, A9, A10	"
4.				Weak station around 1400KC	"	A7	With receiver installed and antenna fully extended adjust A7 for maximum volume.

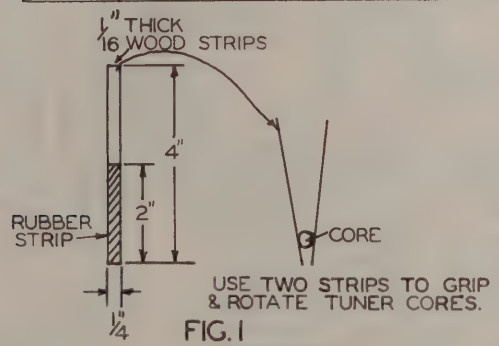

FIG. 1

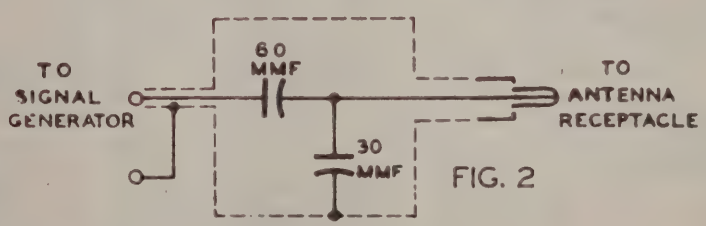

FIG. 2

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BD6	6BD6	7BK	12BD6 used in 12V Model 395-12
V2	Converter	6BE6	6BE6	7CH	12BE6 used in 12V Model 395-12
V3	IF Amp.	6BD6	6BD6	7BK	12BD6 used in 12V Model 395-12
V4	Det.-AVC-AF Amp.	6CR6	6CR6	7EA	12CR6 used in 12V Model 395-12
V5	Audio Output	6AQ5	6AQ5	7BZ	12AQ5 used in 12V Model 395-12
V6	Rectifier	6X4	6X4	5BS	12X4 used in 12V Model 395-12

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	MOTOROLA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	■15	350	23A485677			FP328	FM-3026	T-455	
B	▲10	350							
C	20	25							
C2	90		21A591682						
C3	.006	400	8R121001		GP3-333-602	PT626	IMP6-D6	330626	
C4	4.7		21R115955	TCZ-4R7	NP0A-4R7	ZT-5547			
C5	47		21R115593	TCN-47	N750K-470	ZT-5447			
C6	.05	400	8R121567	DF-503		PT415	IMP4-S5	330415	
C7	.05	200	8R121005	DF-503		PT415	IMP2-S5	330215	
C8	10000		21R482726	DD-103	811-01	DC-511	IMP6-S1	330611	
C9	.05	400	8R121567	DF-503		PT415	IMP4-S5	330415	
C10	.01	400	8R121002	D6-103	GP3-333-103	PT411	IMP4-S1	330411	
C11	470		21R114554	DD-471	811-471	UC-5347		K-1347	
C12	.004	600	8R121000	D6-402	GP2-333-402	PT624	IMP6-D4	330624	
C13A	300	500	21A522033						
B	300	500							
C14	.02	1000	8R1210004						Note 1
C15	.5	100	8K121666			RF480	CT2-P5	330205	
C16	.5	100	8K121666			RF480	CT2-P5	330205	

Note 1. Model 395-12 uses a .04MFD capacitor (part #8A121549) in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	250KΩ	½	18B531560	Q11-130	A47-250K-S	AB-50	U-46	Volume
B	Shaft		Not Req.	Not Req.	RS-3	AK-9	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-4	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	1Meg	½	6R6004	BTS-1Meg	
R3	330Ω	½	6R6022	BTS-330	
R4	100KΩ	½	6R6075	BTS-100K	
R5	47KΩ	½	6R6056	BTS-47K	
R6	470Ω	½	6R6090	BTS-470	
R7	6800Ω	2	6R5690	BTB-6800	
R8	1Meg	½	6R6004	BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R9	2.2Meg	½	6R3927	BTS-2.2Meg	
R10	1Meg	½	6R6004	BTS-1Meg	
R11	220KΩ	½	6R6015	BTS-220K	
R12	270KΩ	½	6R6414	BTS-270K	
R13	270Ω	½	6R6432	BTS-270	
R14	2200Ω	2	6R476130	BTB-2200	
R15	56Ω	1	6R2037		Note 1
R16	56Ω	1	6R2037		Note 1

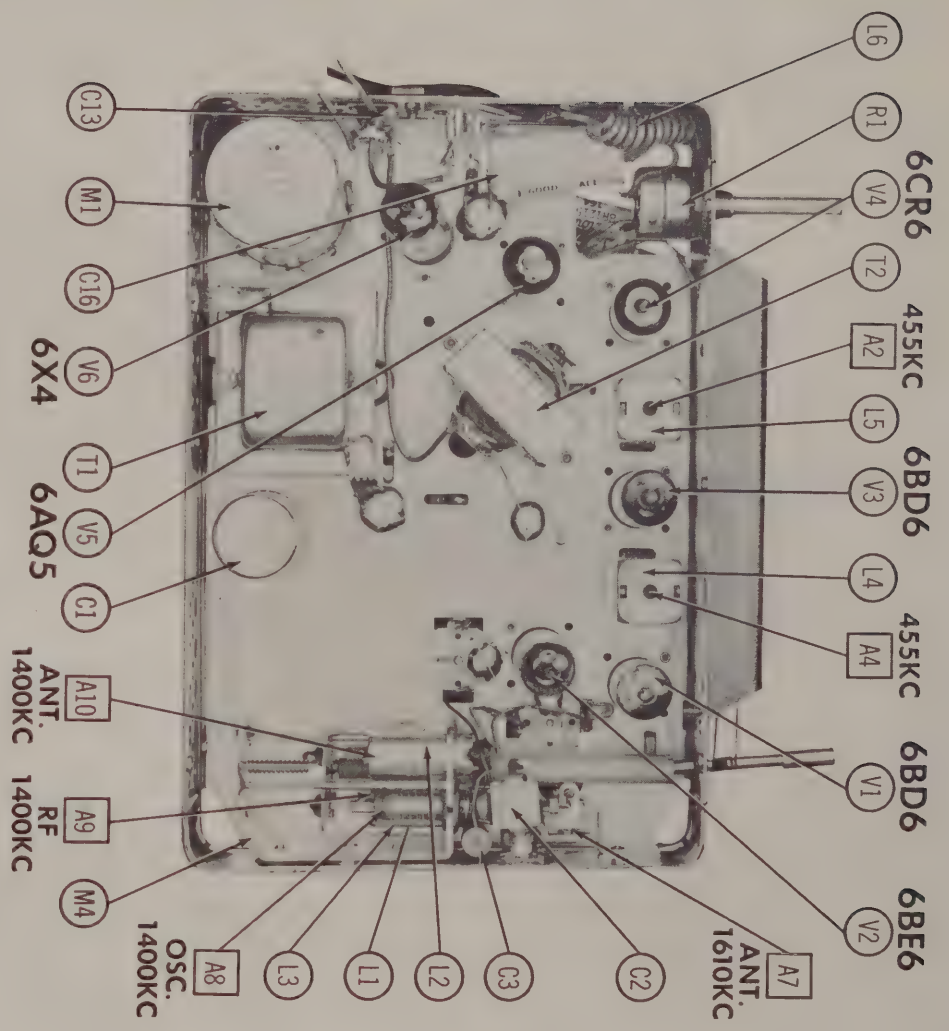
Note 1. Model 395-12 uses a 220Ω, 1 watt resistor in this application (part #6R6389).

TRANSFORMER (FILAMENT)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	6.3VCT ②2.3A	450VCT .042A			25C501303 ①		P-3068			
T1	12VCT ④ 1.4A	376VCT .039A			25C521841 ②					

① Used in Model 395.
② Used in Model 395-12.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5.2KΩ	3.1Ω	25B70171	Z1107	A-2930	A-3877	24S51	S-3X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3.1Ω	50K522339 50K521882 ① 50C534259 ①	52A1	① Alternate 5 1/4" PM speakers

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	11.5Ω		24B502472				Complete assy. (part #77D532163)
L2	RF Coil	11.5Ω		24B502473				Complete assy. (part #77D532163)
L3	Osc.Coil	.7Ω	2.6Ω	24B502474				Complete assy. (part #77D532163)
L4	Input IF	17Ω	17Ω	24C485553	16-6758	BC-352	12-C1	
L5	Output IF	17Ω	17Ω	24K485554	16-6770	BC-355	12-C6	
L6	Fil. Choke	0Ω		24K580706				
L7	Vib. Hash Choke	0Ω		24A472535	19-4215			15.2 Microhenries -Note

Note . Model 395-12 uses part #24A521816 in this application.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6V	115∿	48B3333 ①	5342	903M	5342	① Used in Model 395.
M1	Interrupter	12V	115∿	48B522000 ②	6326	G859	6326	② Used in Model 395-12

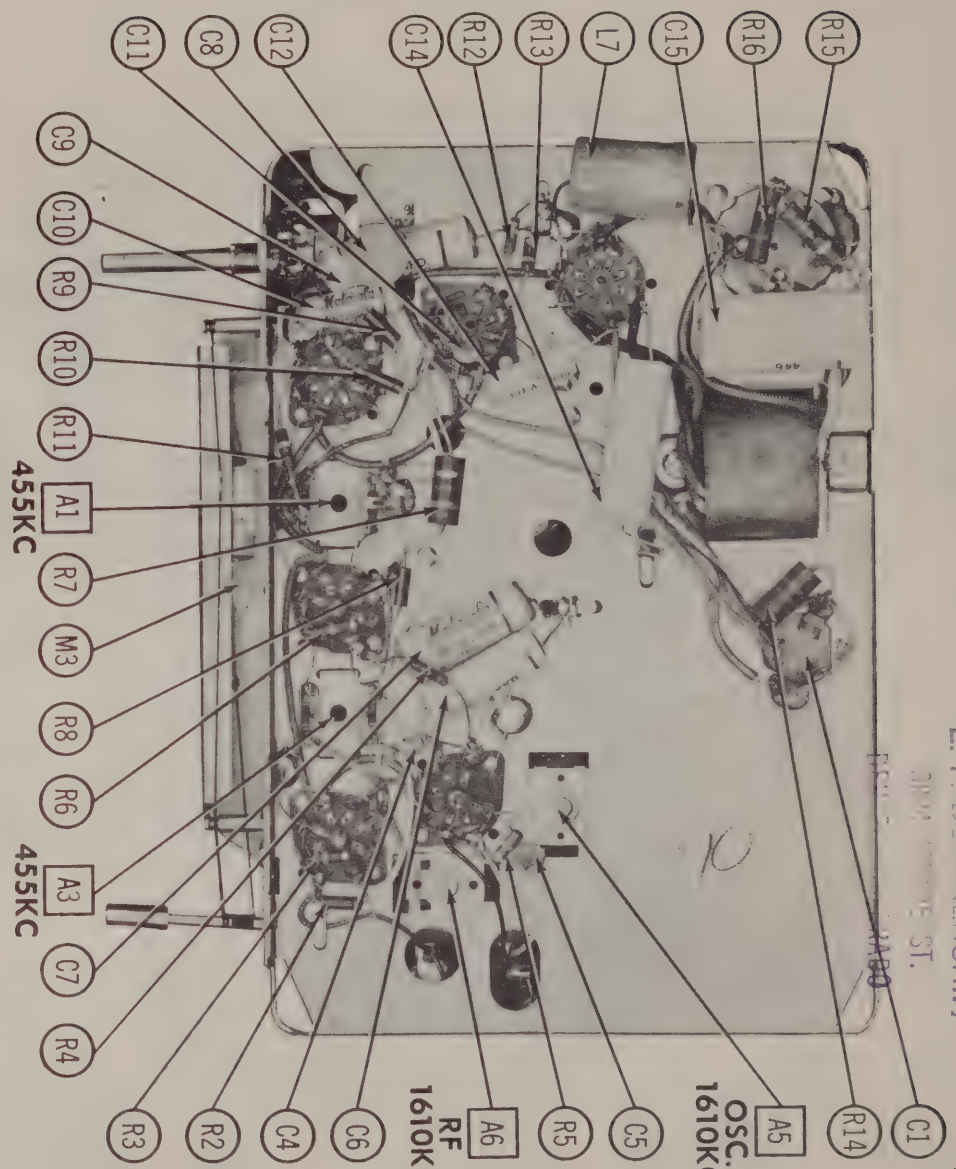
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	9A 32V	65K16248		307009 (SFE9)	155009	SFE9	HRH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Dial Light	65X10867	#44 - Model 395
	Dial Light	65T533821	#1891 - Model 395-12
M4	Tuner	77D532163	Complete - Permeability
M5	Spark Plate	64K532087	
A5	Trimmer Cap.	20A485708	Osc. Trimmer (430MMF Nom.)
A6	Trimmer Cap.	20A481526	RF Trimmer (70MMF Nom.)
A7	Trimmer Cap.	20A502338	Ant. Trimmer (80MMF Nom.)
	Knob	36K510880	On-off-volume & tuning
	Dial Pointer	1A501293	
	Dial Scale	34B533826	
	Dial Background	7K502387	

CHASSIS—BOTTOM VIEW



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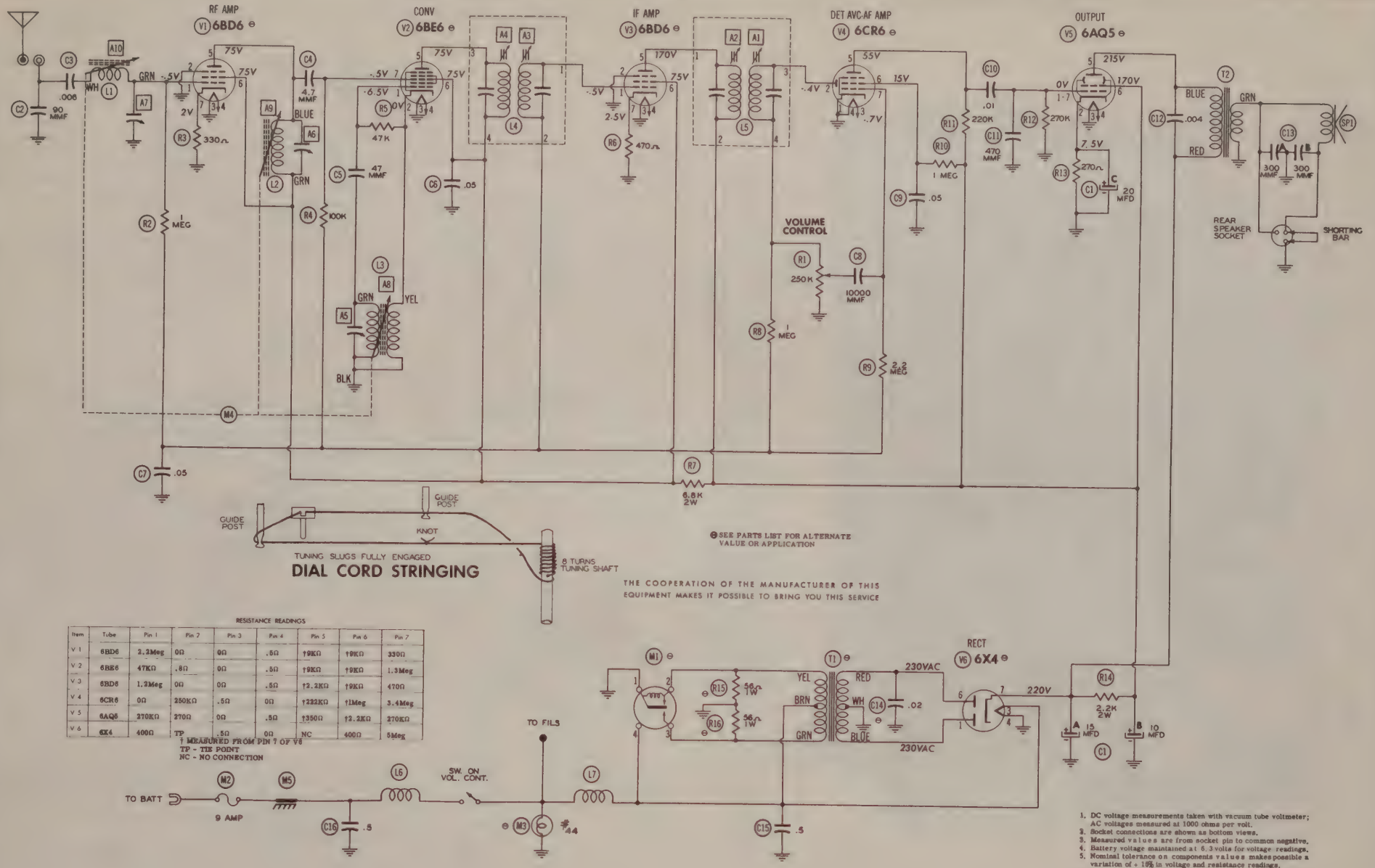

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BD6	2.2Meg	0Ω	0Ω	.5Ω	↑9KΩ	↑9KΩ	330Ω
V 2	6BE6	47KΩ	.8Ω	0Ω	.5Ω	↑9KΩ	↑9KΩ	1.3Meg
V 3	6BD6	1.2Meg	0Ω	0Ω	.5Ω	↑2.2KΩ	↑9KΩ	470Ω
V 4	6CR6	0Ω	250KΩ	.5Ω	0Ω	↑222KΩ	↑1Meg	3.4Meg
V 5	6AQ5	270KΩ	270Ω	0Ω	.5Ω	↑350Ω	↑2.2KΩ	270KΩ
V 6	6X4	400Ω	TP	.5Ω	0Ω	NC	400Ω	5Meg

↑ MEASURED FROM PIN 7 OF V6
TP - TIE POINT
NC - NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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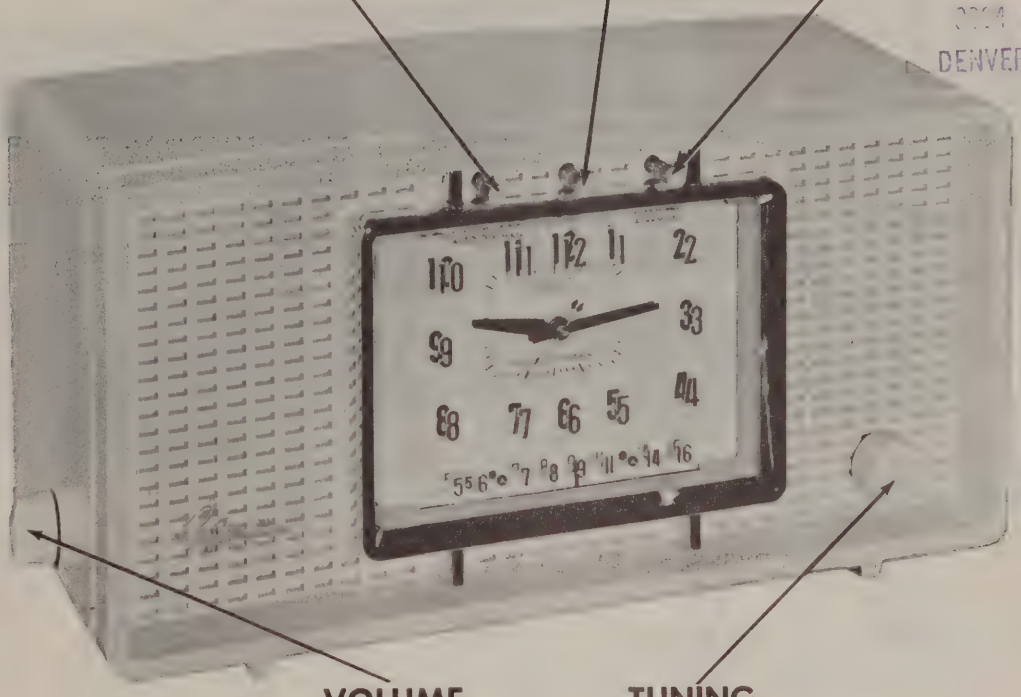
SYLVANIA MODELS 518, 548, 598, 5484 (Ch. 1-602-4, -5, -6, -7)



SYLVANIA MODELS 518, 548, 598, 5484 (Ch. 1-602-4, -5, -6, -7)

TRADE NAME	Sylvania Models 518 (Ch. 1-602-5), 548 (Ch. 1-602-4), 598 (Ch. 1-602-6), 5484 (Ch. 1-602-7)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Tel. Div., 254 Rano St., Buffalo, N.Y.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock (Model 518 Radio only)
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC (Clock Models AC only) RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	1500KC *	"	A6	"

* Set tuning gang so plates are meshed approximately 3/16". Adjust slightly to eliminate any interference.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SYLVANIA PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	40	150	161-2012			TCD48	TDL-D40-150	FMD-1540	
B	40	150							
C2	.047	200		DF-503		PT4147	IMP2-S47	3302147	
C3	43			TCZ-43	NP0L-430			KR-1433	Note 1.
C4A	220		♦190-0017						
B	5000								
C	5000								
D	250								
E									
C5	.022	400		DF-203	817-02	PT4122	IMP4-S22	3304122	
C6	.047	400		DF-503		PT4147	IMP4-S47	3304147	
C7	.047	200		DF-503		PT4147	IMP2-S47	3302147	

♦ Items C4A, C4B, C4C, C4D, C4E, R9A, R9B and R9C are combined in one unit.
When replacing items separately, C4D and C4E should total 250MMF.
Note 1. Some versions may use 100MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	153-0044	Q13-133	A47-500K-Z	B-58	U48	Volume - Note 1
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	153-0043	Q11-133	A47-500K-S	AB-59	SU50	Panelescent - Note 2
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A

Note 1. 152-0027 used in Model 518, 153-0039 used in Models 548 and 5484
Note 2. This control used in Model 598 only.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	NOTES
R3	22Ω	½	181-0220	BTS-22	
R4	22KΩ	½	181-0223	BTS-22K	
R5	82Ω	½	181-0820	BTS-82	
R6	2.2Meg	½	181-0225	BTS-2.2Meg	
R7	680KΩ	½	181-0684	BTS-680K	Note 1
R8	47KΩ	½	181-0473	BTS-47K	Note 2

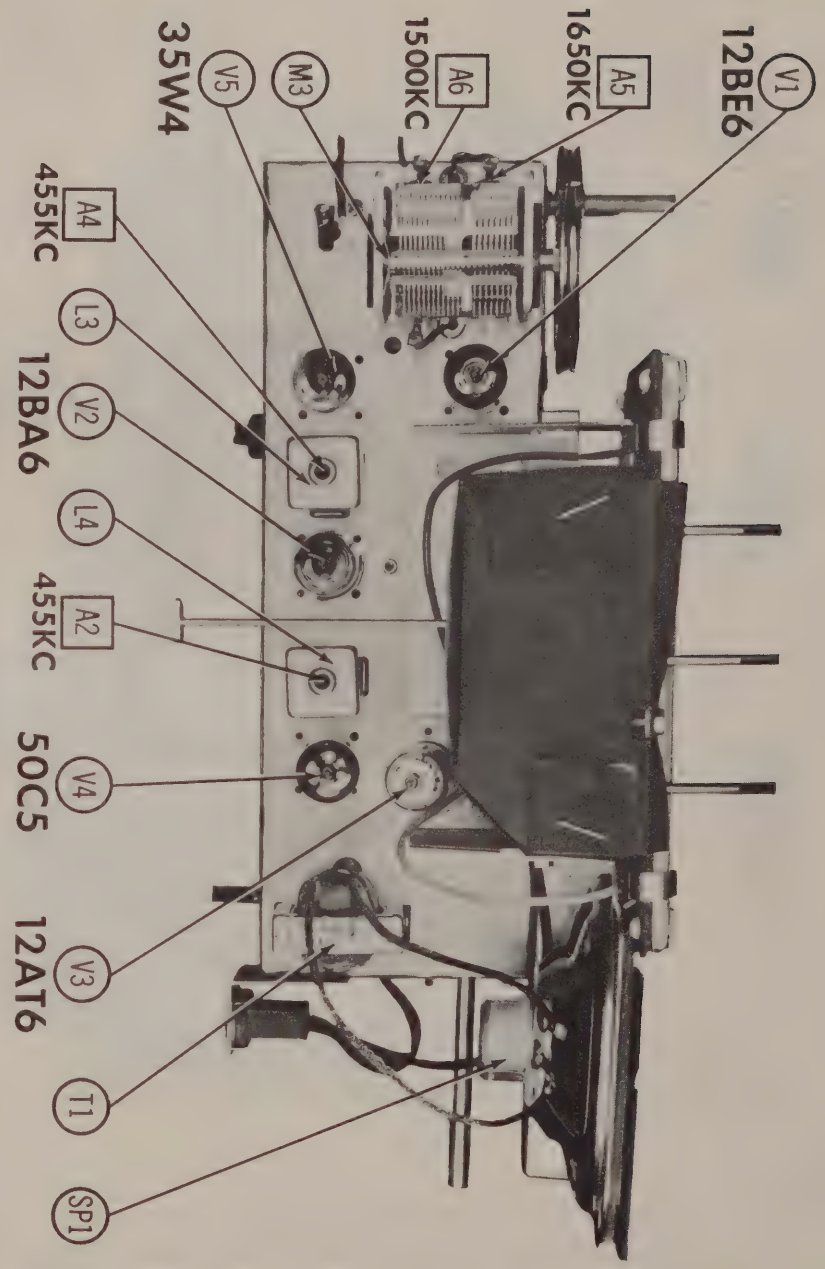
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SYLVANIA PART No.	IRC PART No.	NOTES
R9A	10Meg	½	♦190-0017	BTS-10Meg	
B	470KΩ			BTS-470K	
C	470KΩ			BTS-470K	
R10	150Ω	½	181-0151	BTS-150	
R11	1200Ω	1	182-0122	BTA-1200	
R12	12KΩ	½	181-0123	BTS-12K	Note 3
R13	12KΩ	½	181-0123	BTS-12K	Note 3

♦ Items R9A, R9B, R9C, C4A, C4B, C4C, C4D and C4E are combined in one unit.
Note 1. Used in Model 518 only.
Note 2. Not used in models 548 and 5484.
Note 3. Used in Models 598 only.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.2Ω	143-0028	Z1103 ①	A-3031 ①	A-3330 ①	24S50A ①	S-16X ①	① Bend mounting tabs down, file out slots. Mount on orig. mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	4"	PM	3.2Ω	539-0501	4A07	

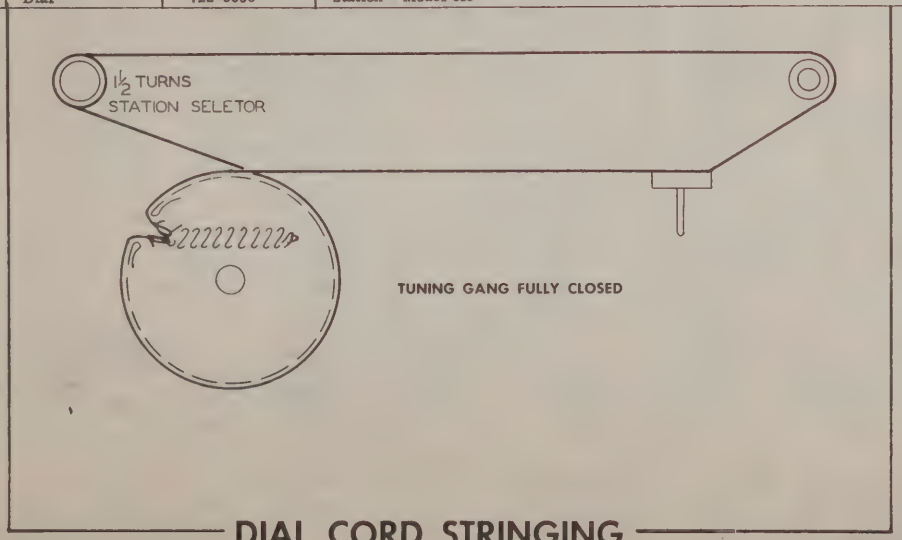
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SYLVANIA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	3.2Ω		582-0022				Includes cabinet back-note 1
L2	Osc. Coil	1.2Ω	7.5Ω	113-0030			71-OSC	
L3	Input IF	15Ω	15Ω	121-0016	16-6758	BC-352	12-C1	
L4	Output IF	15Ω	15Ω	121-0016	16-6758	BC-353	12-C2	

Note 1. Part #581-0004 used in Model 548, part #581-0005 used in Model 518, part #581-0006 used in Model 5484.

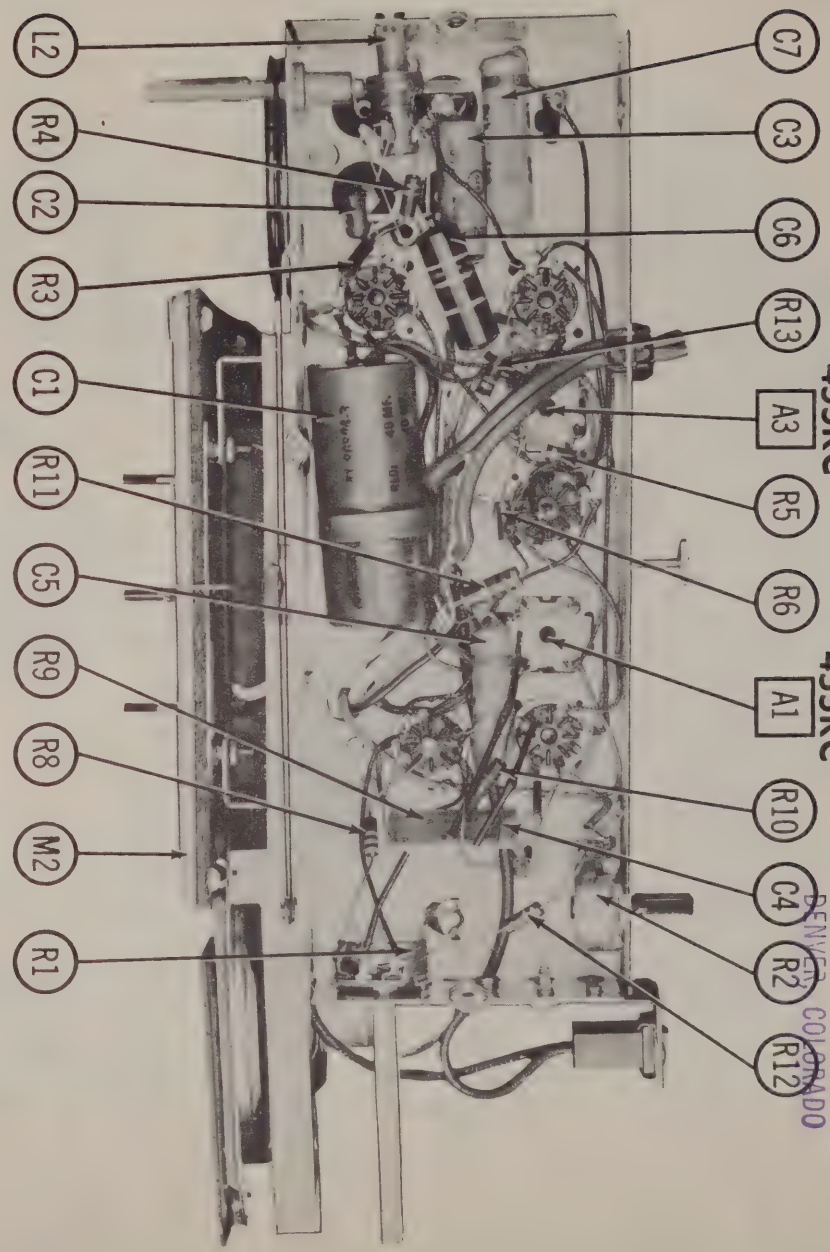
MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M1	Dial Light	611-0047	#47 - Model 518 only
M2	Panelescent Unit		Part of clock & radio dial face - Model 598 only
M3	Tuning Cap.	170-0018	2 Gang (20-355MMF, 16-105MMF) Model 598 only
	Tuning Cap.	170-0015	Models 548 & 5484 only
	Tuning Cap.	170-0016	Model 518 only
	Cabinet	813-0052	Black - Models 548, 5484
	Cabinet	813-0054	Green - Models 548, 5484
	Cabinet	813-0055	Ivory - Models 548, 5484
	Cabinet	813-0053	Red - Models 548, 5484
	Cabinet	813-0048	Black - Model 518
	Cabinet	813-0050	Green - Model 518
	Cabinet	813-0051	Ivory - Model 518
	Cabinet	813-0049	Red - Model 518
	Cabinet	813-0060	Black - Model 598
	Cabinet	813-0062	Green - Model 598
	Cabinet	813-0063	Ivory - Model 598
	Cabinet	813-0061	Red - Model 598
	Crystal	717-0002	Clock - Models 548, 5484
	Dial	722-0038	Station - Model 518



DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



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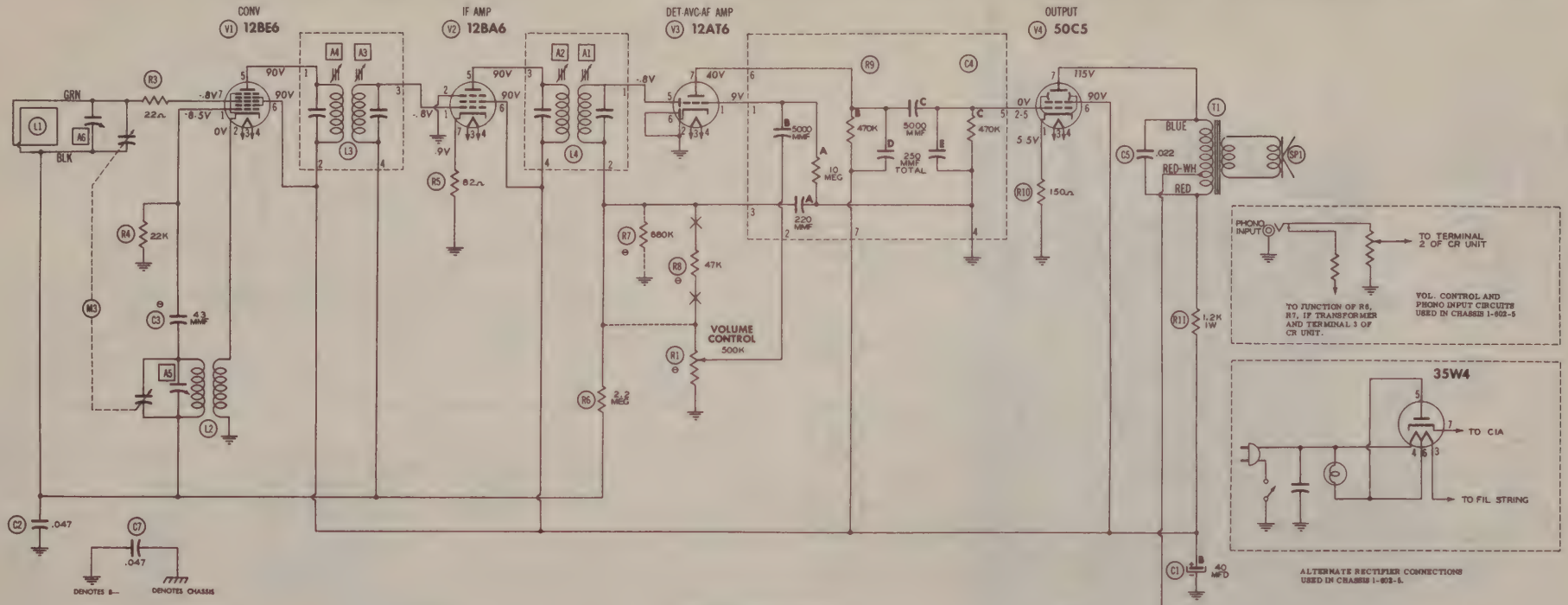

IF=455KC

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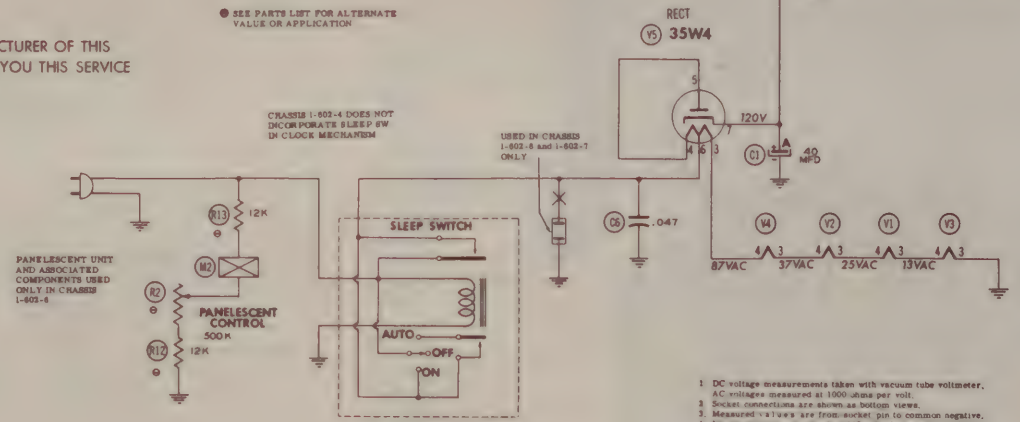

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1.2Ω	13Ω	35Ω	†1.2KΩ	†1.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	35Ω	37Ω	†1.2KΩ	†1.2KΩ	82Ω
V 3	12AT6	10Meg	0Ω	0Ω	13Ω	500KΩ	0Ω	†471KΩ
V 4	50C5	150Ω	470KΩ	87Ω	87Ω	470KΩ	†1.2KΩ	†200Ω
V 5	35W4	TP	TP	87Ω	123Ω	123Ω	117Ω	90KΩ

† MEASURED FROM PIN 7 OF V5
TP - TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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TRAV-LER
MODEL 55-37

TRADE NAME	Trav-Ler Model 55-37
MANUFACTURER	Trav-Ler Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .21 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna terminal on gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	"
3.	"	"	535KC	Tuning gang fully closed	"	A6	"
4.	"	"	1400KC	1400KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TRAV-LER MODEL 55-37

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRAV-LER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRAV-LER PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.
C1A	50	150	EC-33			TCD49	TDL-D50-150	MTD-1550
B	50	150						
C2	.05	400	PC-5	DF-503		PT415	IMP4-S5	330415
C3	47		CC-12	D8-470	GP1K-470	ZT-5447		K-1447
C4A	220		♦MC-19	♦PC-150	♦1408-01			
B	2000							
C	5000							
D	250							
E								
C5	5000		CC-3	DD-502	811-005	DC-525	IMP8-D5	C-1250
C6	.05	400	PC-5	DF-503		PT415	IMP4-S5	330415
C7	.1	400	PC-8	DF-104		PT401	IMP4-P1	330401

♦ Items C4A, C4B, C4C, C4D, C4E, R6A, R6B and R6C are combined in one unit.
When replacing items separately, items C4D and C4E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	VC-64	Q13-137	A47-1Meg-Z	BSK-70-S	U-53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch			76-1	SWE-12	Not Req.	US-26	Attach to R1B

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	NOTES
R2	22KΩ	½	IR-9	BTS-22K	Note 1
R3	33Ω	½	IR-17	BTS-33	
R4	150Ω	½		BTS-150	
R5	3.3Meg	½	IR-23	BTS-3.3Meg	
R6A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦MC-19	BTS-470K	
C	470KΩ	½		BTS-470K	

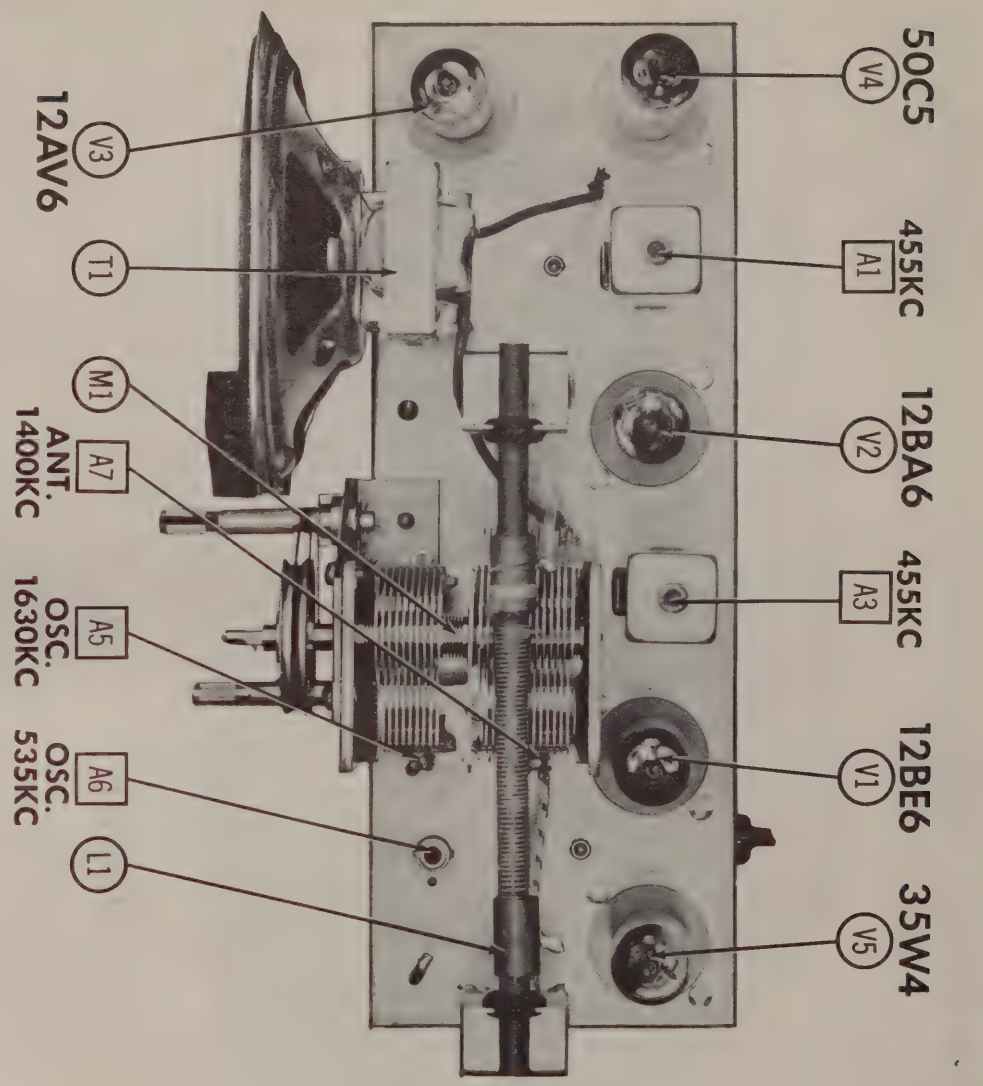
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRAV-LER PART No.	IRC PART No.	NOTES
R7	220Ω	½	IR-114	BTS-220	
R8	2200Ω	1	IR-25	BTA-2200	
R9	33Ω	½	IR-17	BTS-33	
R10	220KΩ	½	IR-20	BTS-220K	

♦ Items R6A, R6B, R6C, C4A, C4B, C4C, C4D and C4E are combined in one unit.
Note 1. Some versions use a 47Ω resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: TRAV-LER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.4Ω	Part of Spkr.	Z1101 ①	A-3025 ①	A-3332 ①	26S58 ①	S-12X ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

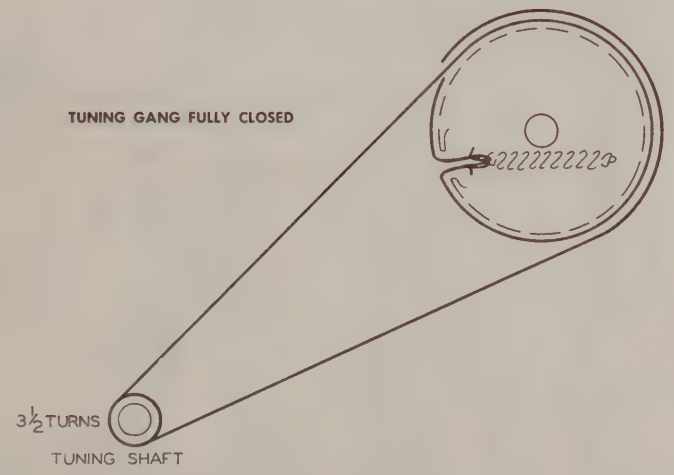
ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRAV-LER PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	SPK-37	4A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRAV-LER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	1.3Ω		LL-38				
L2	Osc. Coil	.6Ω	6.3Ω	LO-21		BC-387	71-OSC	
L3	Input IF	24Ω	24Ω	LI-13	16-6758	BC-352	12-C1	
L4	Output IF	24Ω	24Ω	LI-13	16-6758	BC-353	12-C2	

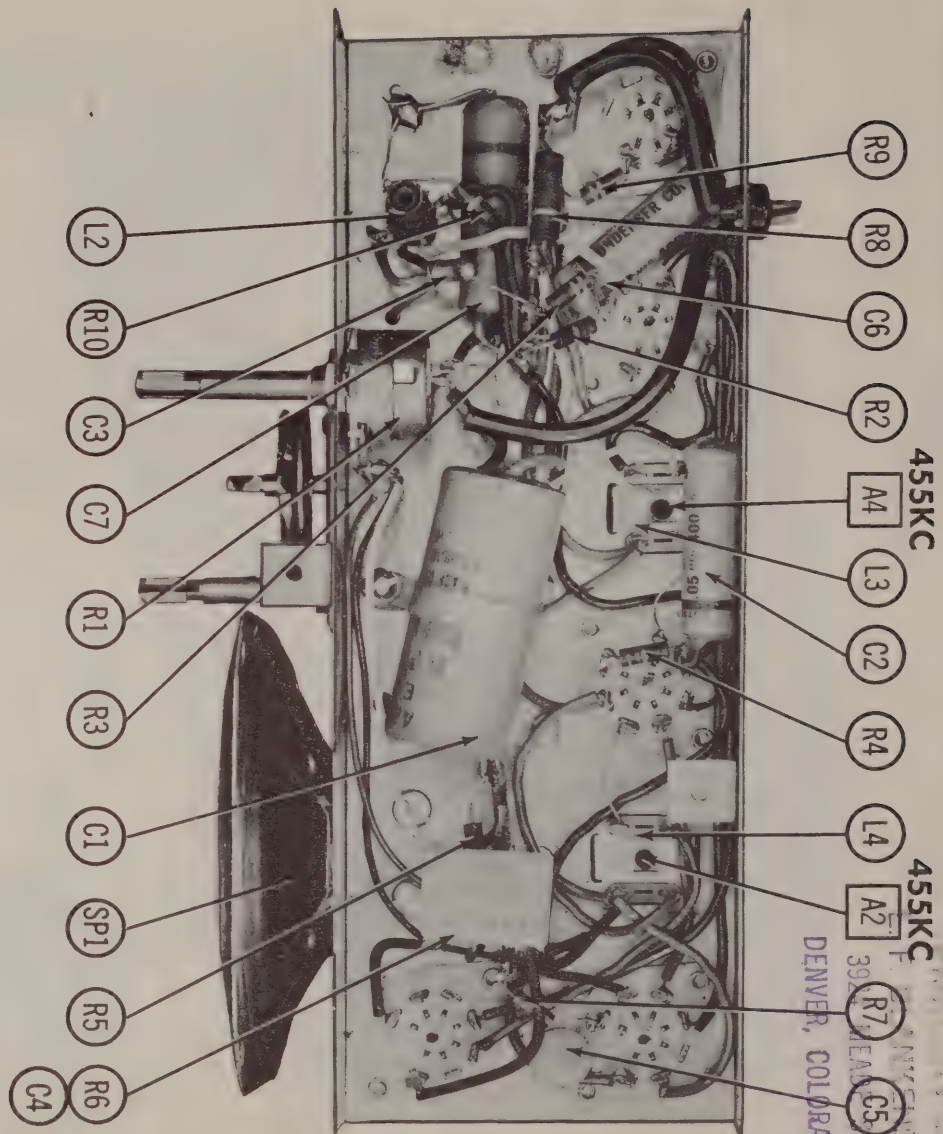
MISCELLANEOUS

ITEM No.	PART NAME	TRAV-LER PART No.	NOTES
M1	Tuning Cap.	GC-15	2 Gang (37-480MMF, 33-195MMF)



DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



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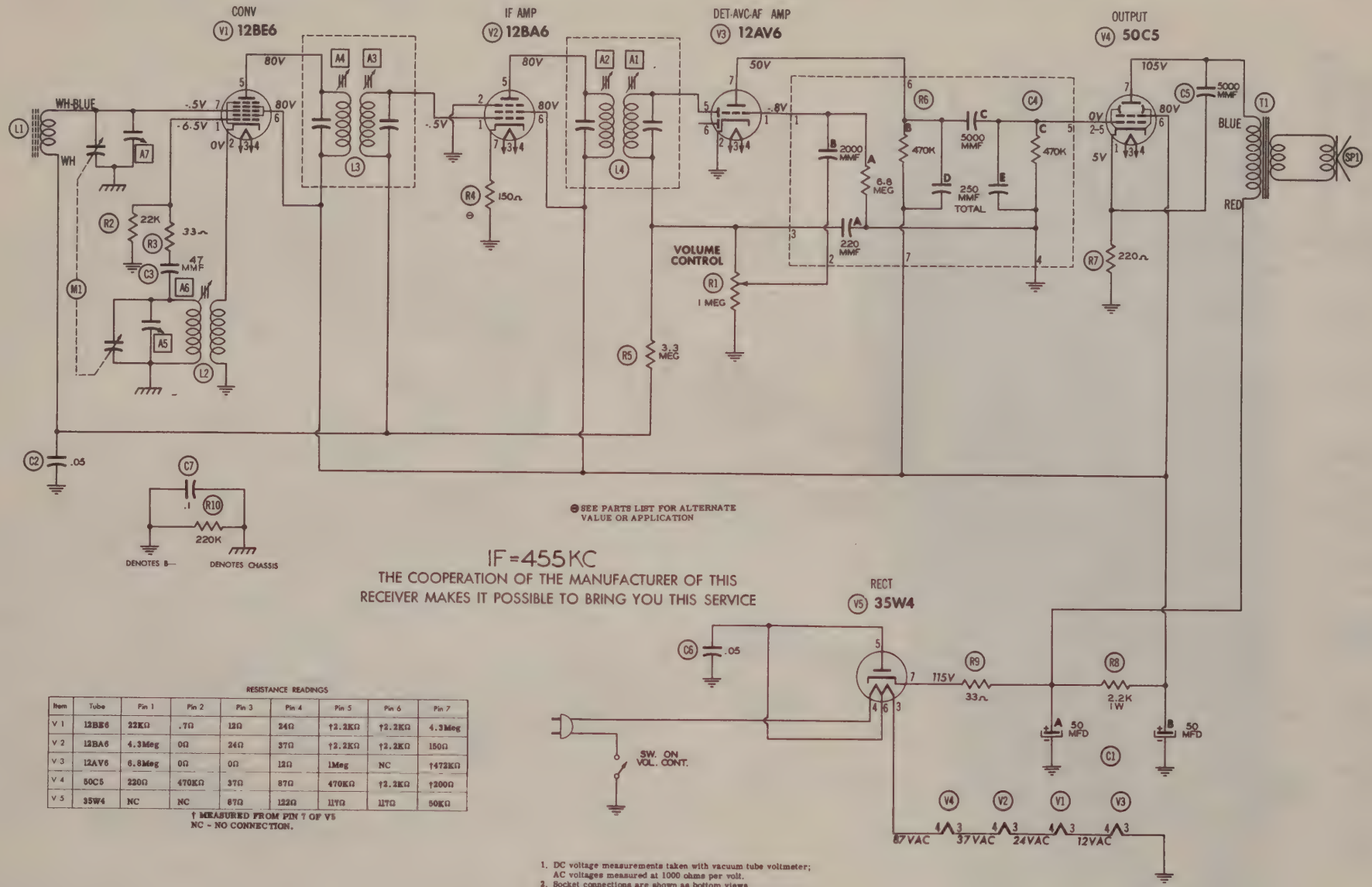
TRAV-LER MODEL 55-37



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

IF = 455 KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.7Ω	12Ω	24Ω	†2.2KΩ	†2.2KΩ	4.3Meg
V 2	12BA6	4.3Meg	0Ω	24Ω	37Ω	†2.2KΩ	†2.2KΩ	150Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	1Meg	NC	†472KΩ
V 4	50C5	220Ω	470KΩ	37Ω	87Ω	470KΩ	†2.2KΩ	†200Ω
V 5	35W4	NC	NC	87Ω	122Ω	117Ω	117Ω	50KΩ

† MEASURED FROM PIN 7 OF V5
NC - NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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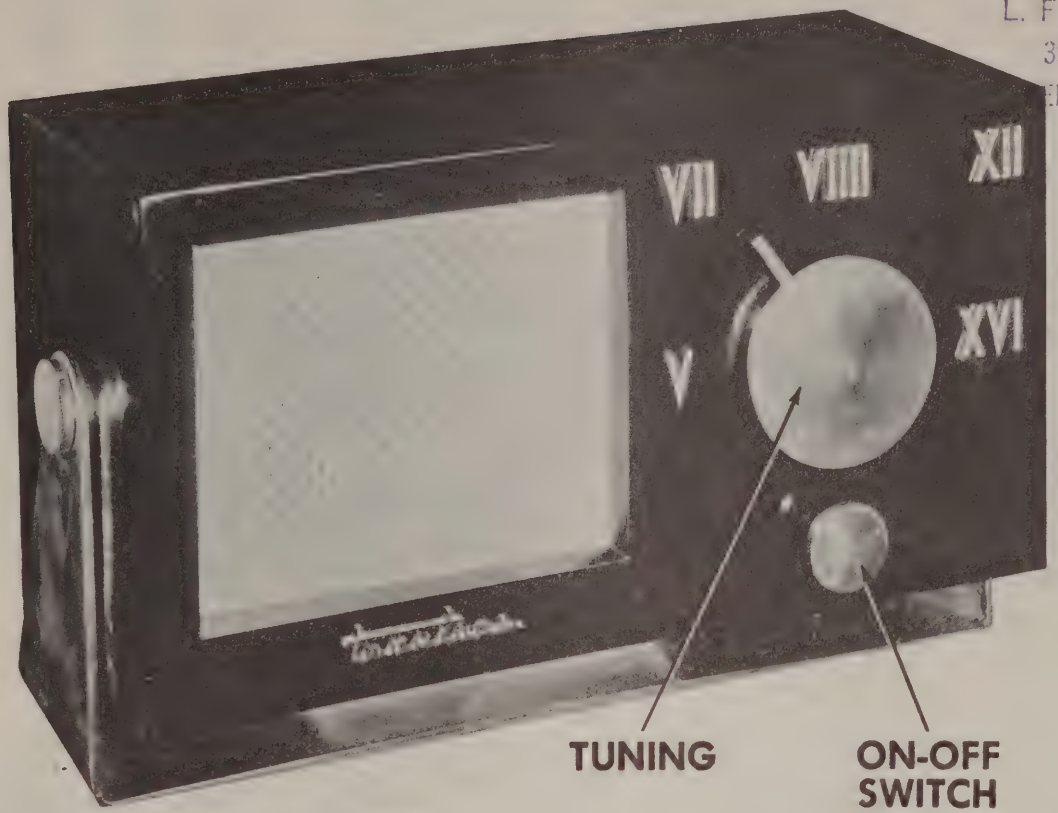
TRUETONE
MODELS D2562A, D2563A



TRUETONE
MODELS D2562A, D2563A

TRADE NAME	Truetone Models D2562A, D2562B
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1625KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2562A

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	50	150	C-50-30-1.5			TCD497	TDL-5030-150	MTD-301	
B	30	150							
C2	.05	400	C054	DF-503		PT415	IMP4-S5	330415	
C3A	100		† PC50	†PC-50	† 1403-01			K-1310	
B	100							K-1310	
C4	2000		C0025D	DD-202	801-002	DC-522	IMP6-D2	C-1220	
C5A	5000								
B	250		♦ PC70	♦PC-70	♦1406-01				
C									
C6	.05	400	C054	DF-503		PT415	IMP4-S5	330415	
C7	.1	400	C104	DF-104		PT401	IMP4-P1	330401	

† Items C3A, C3B and R4 are combined in one unit.
♦ Items C5A, C5B, C5C, R7A and R7B are combined in one unit.
When replacing items separately, items C5B and C5C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	VRT-87	Q13-137	A47-1Meg-Z	AB-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R2	22KΩ	½	R223.5	BTS-22K	
R3	270Ω	½	R271.5	BTS-270	
R4	47KΩ	½	†PC50	BTS-47K	
R5	1.8Meg	½		BTS-1.8Meg	Note 1
R6	10Meg	½	R107.5	BTS-10Meg	

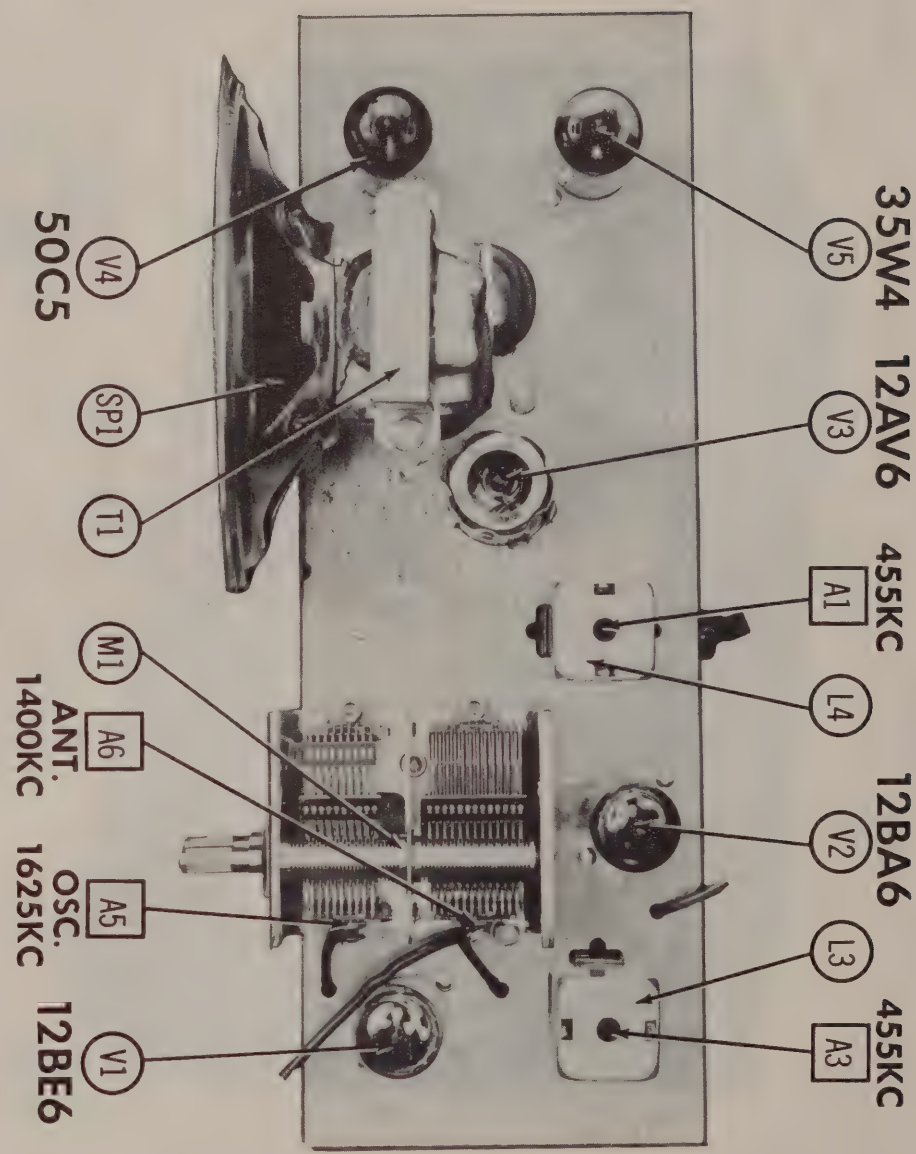
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R7A	500KΩ	½	♦PC70	BTS-470K	
B	500KΩ	½		BTS-470K	
R8	150Ω	½	R151.5	BTS-150	
R9	1200Ω	1	R1228	BTA-1200	

Note 1. Some versions use a 2.2Meg resistor in this application.
† Items R4, C3A, C3B are combined in one unit.
♦ Items R7A, R7B, C5A, C5B and C5C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2.4KΩ	3.3Ω	Part of Spkr.	Z1101	A-3025	A-3332	26S58①	S-12X	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	SPK87	4A1 ①	① Use universal mounting bracket.

COILS (RF-IF)

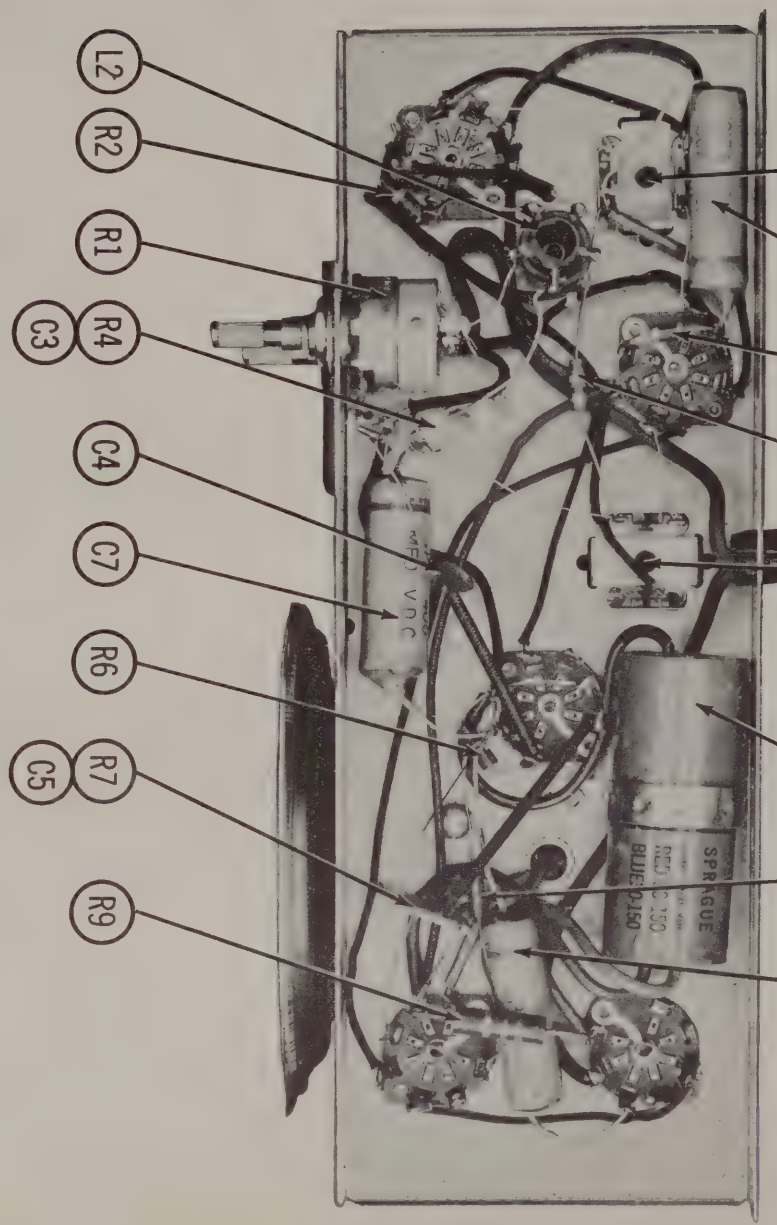
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.5Ω		LT87				Includes cabinet back
L2	Osc. Coil	.4Ω	5.3Ω	LOT85	14-1073 *		69-OSC *	
L3	Input IF	17Ω	17Ω	LIFT67	16-6758	BC-352	12-C1	
L4	Output IF	17Ω	17Ω	LIFT67	16-6758	BC-353	12-C2	

* Use leads as mounting support.

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	Tuning Cap.	VCT85	2 Gang (31-430MMF, 25-190MMF)
	Cabinet	P2901	Black - Model D2562A
	Cabinet	P2901R	Red - Model D2563A
	Stand	M2504	
	Knob	M2501	Tuning
	Knob	M2502	On-off-volume
	Knob	M2503	Suspension

CHASSIS—BOTTOM VIEW



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TRUETONE MODEL D2562A

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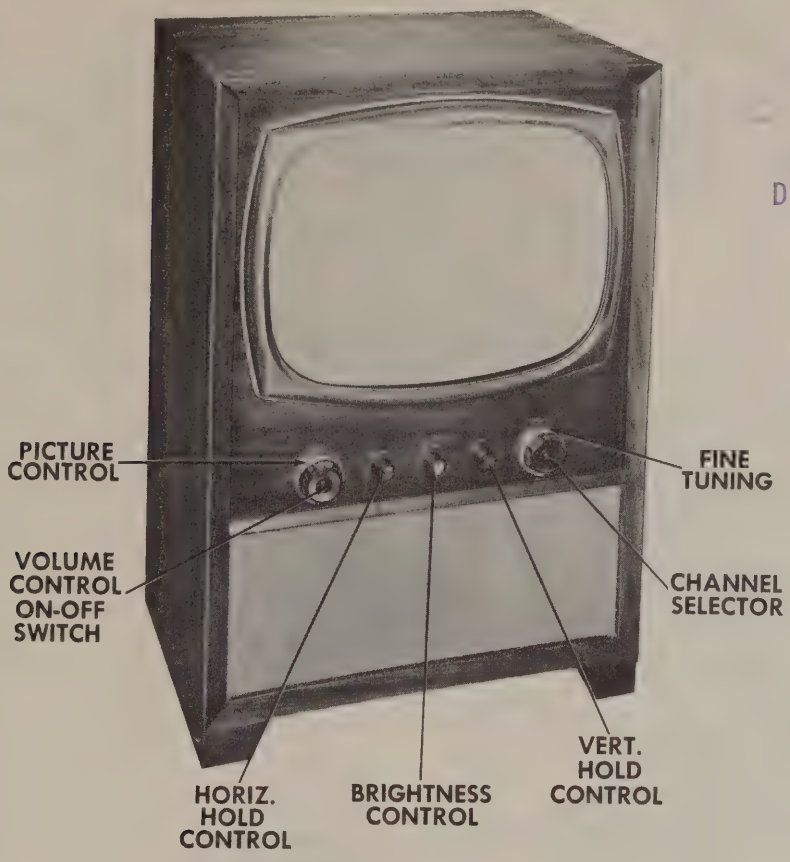

TRUETONE MODEL 2D1411B

TRADE NAME	Truetone Models 2D1411A, 2D1411B, 2D1411D
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	105-115 Volts AC-60 Cycles RATING 1.36 Amp. @ 115 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 26.75MC, Sound IF 22.25MC (Intercarrier)

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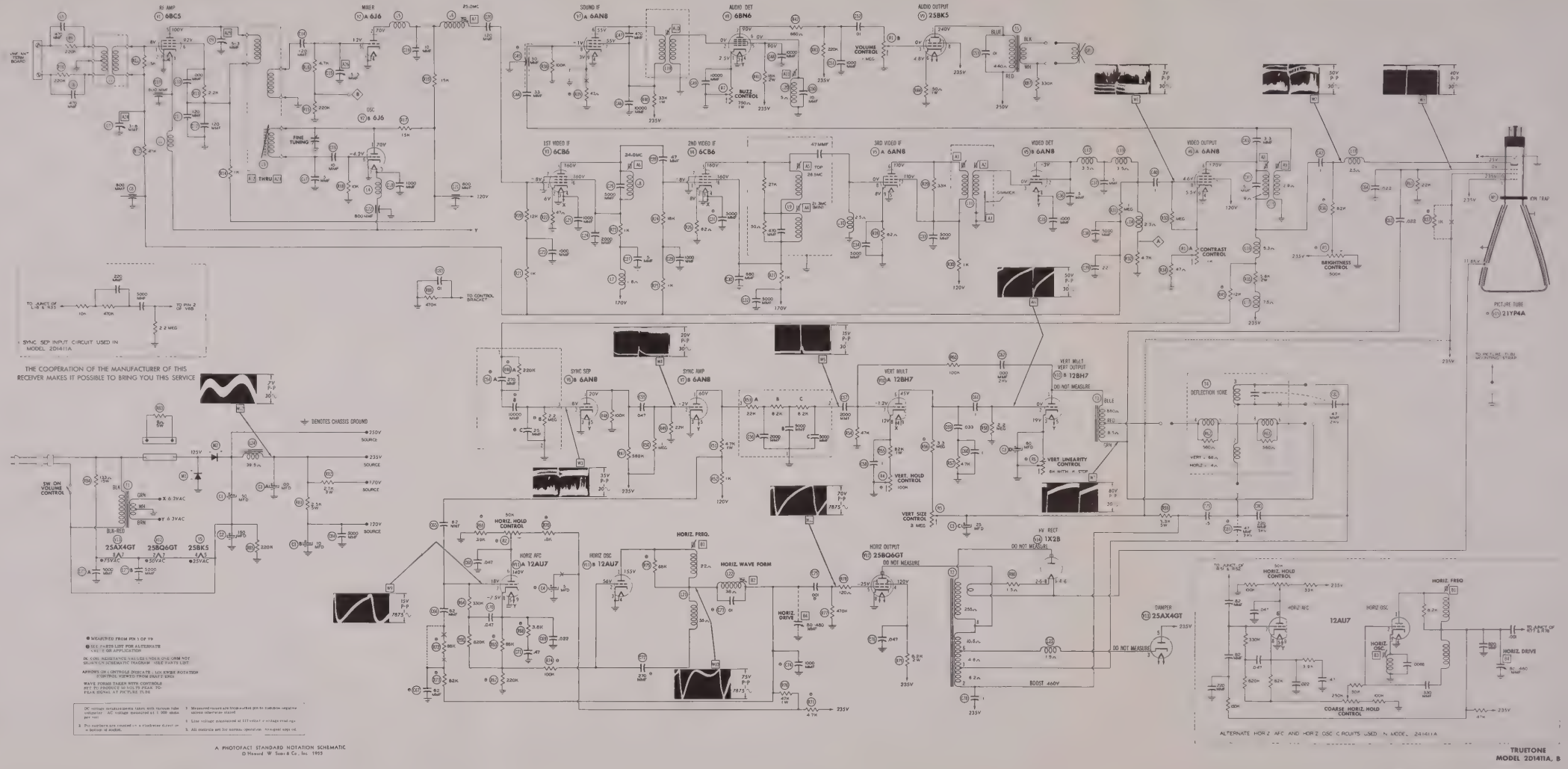
TRUETONE
MODEL 2D1411A, B


RF AMP
V1 6BC5
MIXER
V2 A 6J6
OSC
V2 B 6J6
SOUND IF
V3 A 6AN8
AUDIO DET
V4 6BN6
AUDIO OUTPUT
V9 25BK5
1ST VIDEO IF
V1 6CB6
2ND VIDEO IF
V4 6CB6
3RD VIDEO IF
V5 A 6AN8
VIDEO DET
V5 B 6AN8
VIDEO OUTPUT
V6 A 6AN8
PICTURE TUBE
V11 21YP4A
SYNC SEP
V8 B 6AN8
SYNC AMP
V7 B 6AN8
VERT MULT
V10 A 12BH7
VERT MULT
VERT OUTPUT
V10 B 12BH7
HORIZ AFC
V11 A 12AU7
HORIZ OSC
V11 B 12AU7
HORIZ OUTPUT
V12 25BQ6GT
HV RECT
V13 1X2B
DAMPER
V13 25AX4GT
25AX4GT
V13
25BQ6GT
7A7
V9
25BK5
6A7
V8
SYNC SEP INPUT CIRCUIT USED IN MODEL 2D1411A
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DENOTES CHASSIS GROUND
ON VOLUME CONTROL
HORIZ. HOLD CONTROL
HORIZ. FREQ.
HORIZ. WAVE FORM
HORIZ. DRIVE
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
VERT SIZE CONTROL
CONTRAST CONTROL
BRIGHTNESS CONTROL
DEFLECTION YOKE
ION TRAP
BOOST 460V
COARSE HORIZ. HOLD CONTROL
ALTERNATE HORIZ AFC AND HORIZ OSC CIRCUITS USED IN MODEL 2D1411A
TRUETONE
MODEL 2D1411A, B
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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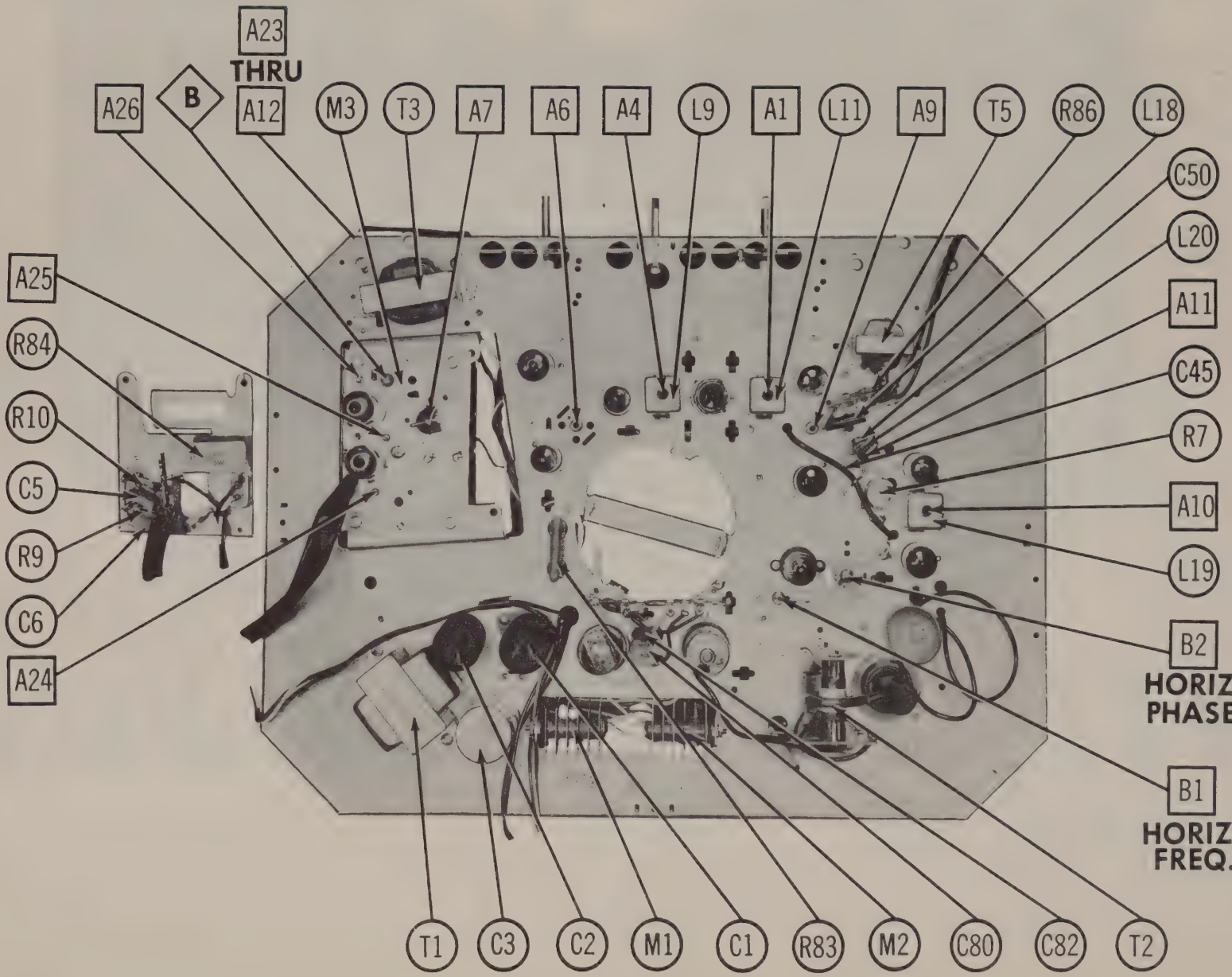

CHASSIS TOP VIEW

MODEL 2D1411A, B

TRUETONE

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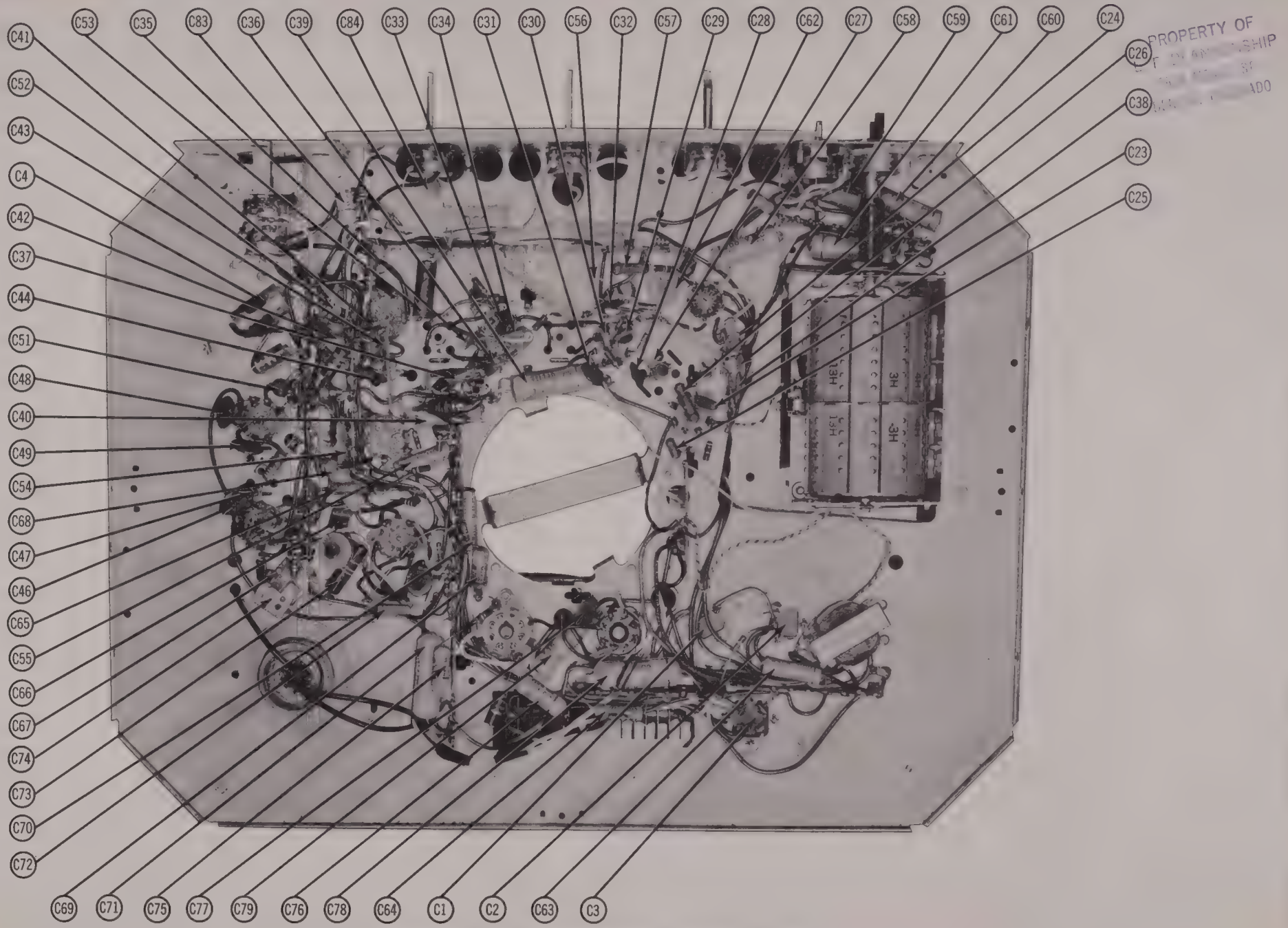

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PROPERTY OF

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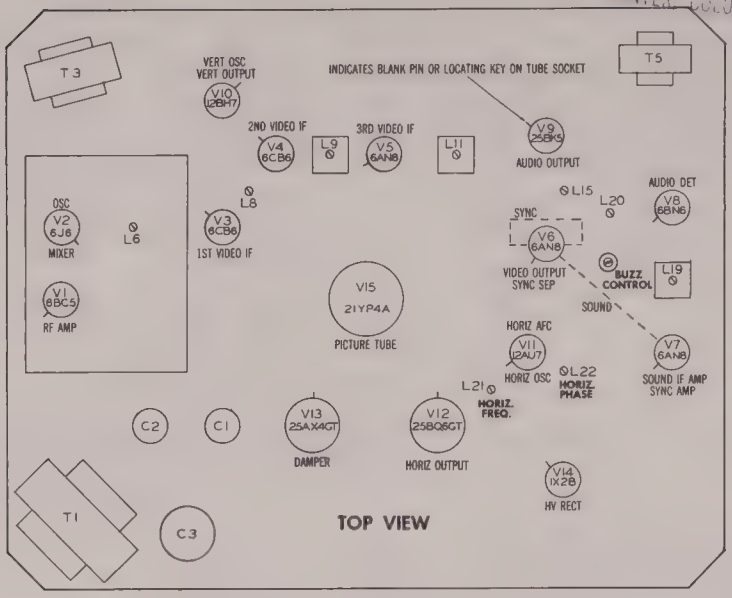
...LO, COLORADO

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

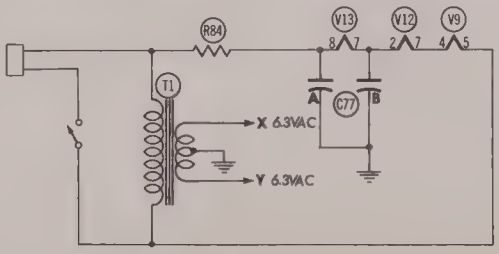
POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifiers (M1 & M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V15
Has pic, no sound - V7, V8, V9

SYNC FAILURE
No vert. sync - V7, V10
No horiz. sync - V7, V11
No vert. or horiz. sync - V6, V7

SWEEP FAILURE
No raster, has sound - V11, V12, V13, V14, V15
No vertical deflection - V10
Poor vert. linearity or foldover - V10
Poor horiz. linearity or foldover - V11, V12, V13
Narrow picture - V11, V12, V13, V14, M1, M2
Vert. off freq. - V7, V10
Horiz. off freq. - V7, V11

NOTE: Since this receiver employs tubes used in series-parallel filament network, an open filament in any tube in series may cause the set to be inoperative. (See circuit below).



SET 287 FOLDER 16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use the isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube (V11) to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect a .001MFD capacitor across the vertical input terminals of oscilloscope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MFD	High side to pin 8 (grid) of 6AN8 (V5). Low side to chassis.	25MC (10MC Swp)	23.9MC 26.3MC	Any	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A1, A2, A3	Connect a short jumper from pin 5 (plate) to pin 6 (screen) of 6CB6 (V4). Adjust for response similar to Fig. 1 with markers at 90%. A3 is a coupling rod and affects band width. Remove short from pin 5 to pin 6 of V4.
2.	"	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	Not used	21.3MC	"	Use VTVM. DC probe to point (A). Common to chassis.	A4	Adjust for MINIMUM deflection.
3.	"	"	"	26.5MC	"	"	A5	Adjust for maximum deflection. Attenuate generator output to maintain not more than 2 volts at VTVM. Repeat step 2.
4.	"	"	"	24.0MC	"	"	A6	Adjust for maximum deflection. Attenuate generator output to maintain not more than 2 volts at VTVM.
5.	"	"	"	25.0MC	"	"	A7	"
6.	"	"	25MC (10MC Swp)	21.3MC 23.8MC 26.65MC	"	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig. 2. Rock A7 for flat response. Increase sweep generator output and use high scope gain to view 21.3MC trap region. Adjust A4 so that 21.3MC occurs at peak of pop-up portion preceding trap notch. If response obtained is not similar to Fig. 2, repeat steps 1 thru 6.

SOUND IF ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Tune in a TV station and adjust the fine tuning control until sound bars just appear in the picture. Adjust A8 fully counter clockwise, then clockwise until the horizontal scanning lines are smooth and continuous. Readjust the fine tuning control for clearest picture and best sound.
Insert an attenuator in series with the antenna terminals so that the signal strength may be varied from weak to strong. If a suitable attenuator is not available, stray-feed the signal to the receiver by placing the antenna lead near the antenna terminals.
Reduce the signal input to the receiver so that the signal falls below the limiting level of the 6BN6 (V8) limiter-detector as evidenced by a "hiss"in the sound. Adjust the secondary of the sound take-off transformer (A9), the sound IF transformer (A10), the quadrature coil (A11) and the buzz control (R7) for maximum sound and mimimum buzz. If hiss disappears while adjusting increase attenuation until hiss reappears.

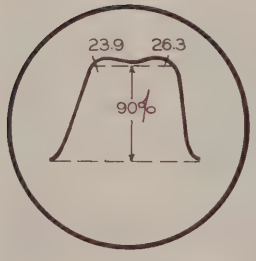


FIG.1

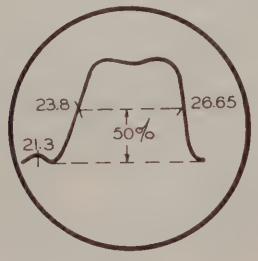


FIG.2

ALIGNMENT INSTRUCTIONS (cont)

PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

OSCILLATOR ALIGNMENT

The channel oscillator adjustment screws are reached thru a hole just to the right of the fine tuning shaft.
The correct oscillator adjustment screw is accessible thru this hole as the channel switch is turned to each channel. Connect the lead of a 1.5 volt bias supply to the AGC tuner terminal. Connect positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscillososcope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point Ⓐ. Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 3. Use high scope gain and increase sweep generator output to view trap region. Video marker should fall at 50% on response curve.
			213MC (10MC Swp)	211.25MC 215.75MC	13		A13	
			207MC (10MC Swp)	205.25MC 209.75MC	12		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

RF AND MIXER ALIGNMENT

Leave bias connected as under "Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point Ⓑ. Low side to chassis.	A24, A25, A26	Adjust for response curve similar to Fig. 4 with markers above 90%.
9.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"		Check for response curve similar to Fig. 4. If markers fall below 70% on any channel, make SLIGHT compromise adjustments of A24, A25 and A26 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected.
			213MC (10MC Swp)	211.25MC 215.75MC	13			
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

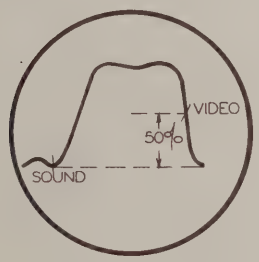


FIG.3

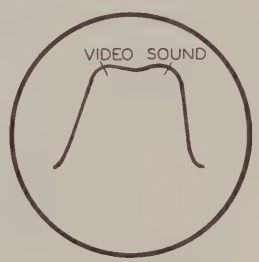
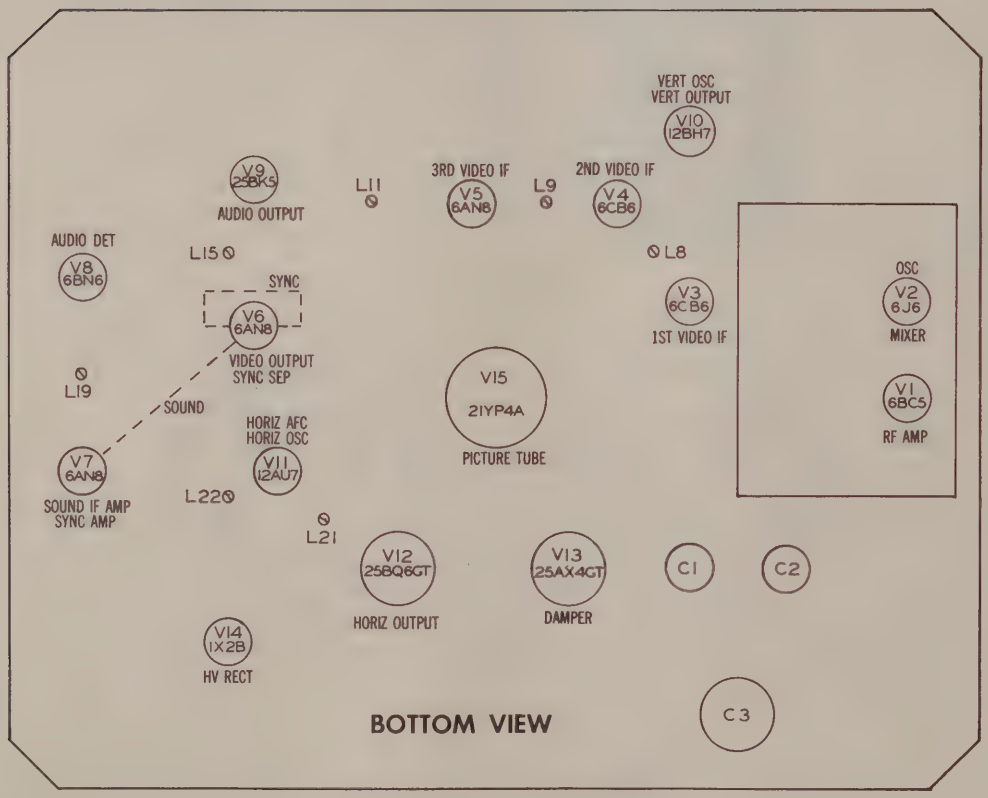


FIG.4

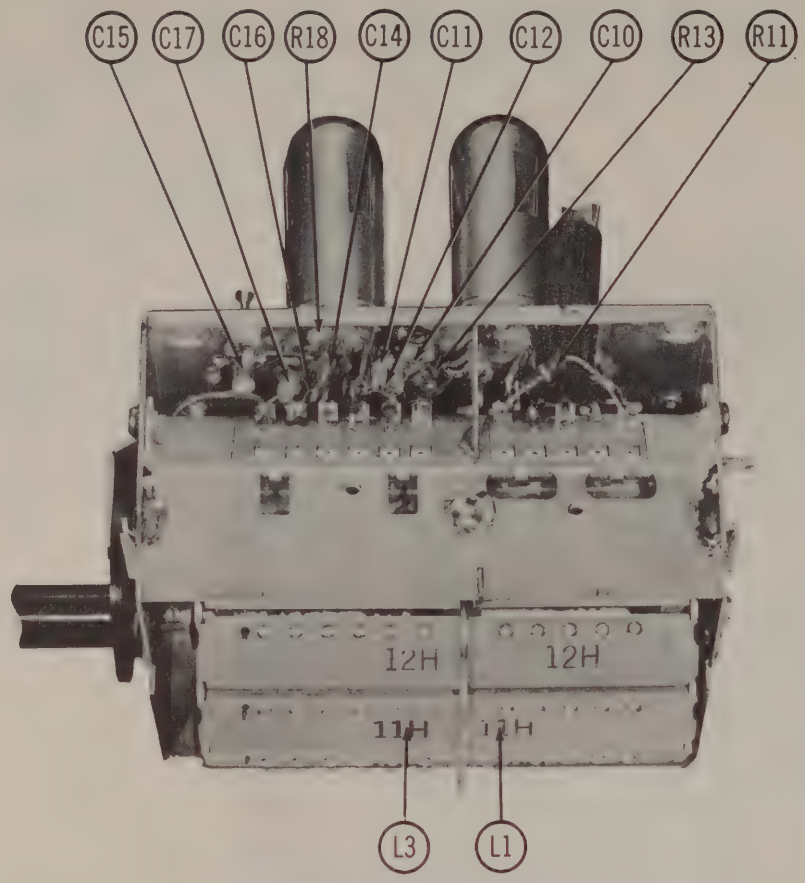
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1Meg	0Ω	.1Ω	0Ω	†3.5KΩ	†4.5KΩ	0Ω		
V 2	6J6	†18KΩ	†18KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	0Ω	.1Ω	†3.7KΩ	†3.7KΩ	0Ω		
V 4	6CB6	1Meg	62Ω	0Ω	.1Ω	†3.7KΩ	†3.7KΩ	0Ω		
V 5	6AN8	4.7KΩ	4.7KΩ	.2Ω	.1Ω	0Ω	†3.5KΩ	†3.5KΩ	2.5Ω	82Ω
V 6	6AN8	†100KΩ	2.2Meg	0Ω	0Ω	.1Ω	†5.6KΩ	†2.5KΩ	1Meg	250Ω
V 7	6AN8	†8.2KΩ	22KΩ	0Ω	0Ω	.1Ω	†33KΩ	†33KΩ	100KΩ	47Ω
V 8	6BN6	300Ω	.3Ω	0Ω	.1Ω	†18KΩ	5Ω	†220KΩ		
V 9	25BK5	†440Ω	NC	100KΩ	35KΩ	35KΩ	150Ω	100KΩ	†40Ω	TP
V 10	12BH7	▲4.2KΩ	2.2Meg	1.3KΩ	.1Ω	.1Ω	▲5Meg	47KΩ	120KΩ	1.7Ω
V 11	12AU7	†50KΩ	320KΩ	0Ω	0Ω	0Ω	†30KΩ	1.4Meg	300KΩ	.1Ω
V 12	25BQ6GT	NC	35KΩ	TP	†8.2KΩ	470KΩ	NC	35KΩ	0Ω	TOP CAP ▲12Ω
V 13	25AX4GT	TP	NC	800KΩ	NC	†40Ω	NC	35KΩ	35KΩ	
V 14	1X2B		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲265Ω
V 15	21YP4A	0Ω	22KΩ	PIN 6 40Ω	PIN 10 40Ω	PIN 11 130KΩ	PIN 12 .1Ω			

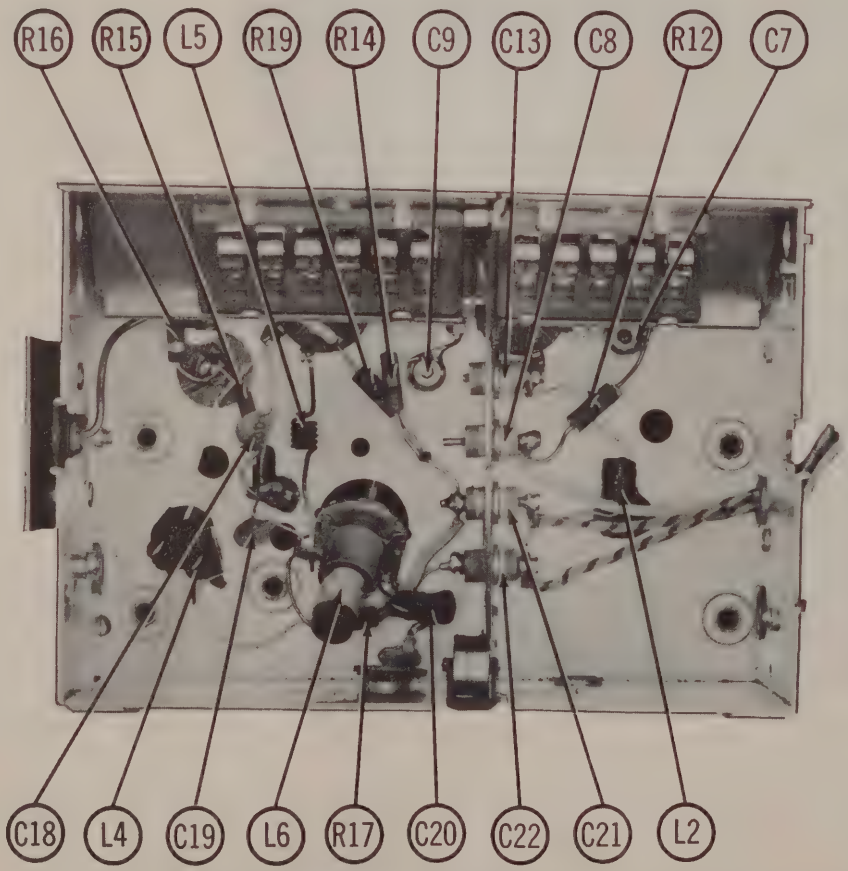
† MEASURED FROM OUTPUT OF M2.
▲ MEASURED FROM PIN 3 OF V13.
NC - NO CONNECTION
TP - TIE POINT



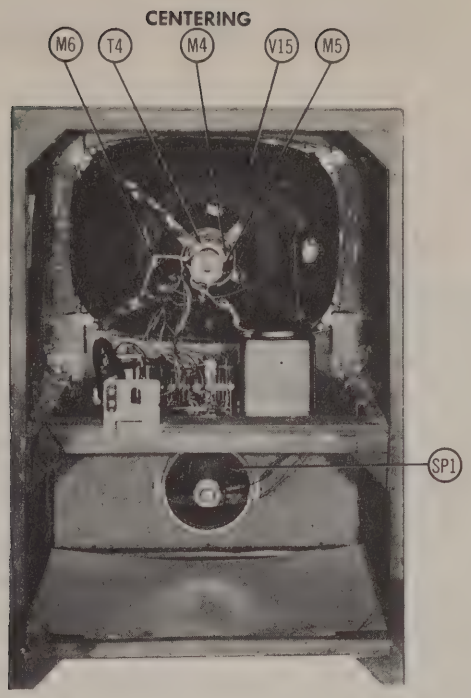
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



PROPERTY OF
L. F BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern. Set the horizontal hold control (R2) to its mid-range position.

Connect a short jumper across the horizontal phase coil (L22).

Starting with the horizontal frequency slug (B1) all the way out (counter clockwise) adjust B1 in a clockwise direction, until the picture synchronizes.

Remove short from L22, connect the vertical input of an oscilloscope thru a 10KΩ resistor to the junction of L21, L22, R75 and C73. Connect low side to chassis.

Adjust the horizontal waveform slug (B2) until the broad and narrow peaks of the waveform on the scope are of equal height as shown in Fig. 5.

If necessary, during adjustment of B2, adjust B1 to keep the picture synchronized.

Remove scope from set. Picture should now remain in sync while switching off channel and back again.

If not, rotate the horizontal hold a few degrees.

ALTERNATE HORIZONTAL OSCILLATOR ADJUSTMENT FOR MODEL 2D1411A ONLY

Turn the set on and tune in a TV station, preferably a test pattern.

1. Set the horizontal hold control to its mid-range position and adjust the coarse horizontal hold control (R8) for a steady picture.

2. Turn the horizontal hold control (R2) fully counter clockwise noting the number of diagonal bars present on the screen. Adjust R8 until an equal number of diagonal bars are present on the screen at the extreme setting of R2. If this condition cannot be obtained proceed with step 3.

3. Turn the horizontal hold control (R2) counter clockwise. Turn R8 fully clockwise. Turn the horizontal oscillator coil slug (B3) counter clockwise until a break-up of raster appears. Turn B3 clockwise until raster stabilizes. Turn B3 an additional two turns in a clockwise direction.

4. Set the R2 and R8 to their mid-range position, and adjust B1 until picture synchronizes horizontally. Recheck holding action as in steps 1 and 2 above.

Set the horizontal drive trimmer (B4) clockwise as far as possible without the presence of vertical white lines or compression near the center of the picture.

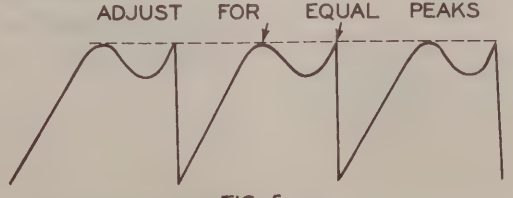


FIG. 5

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check M1 and M2. Check R79, C75, T2, T4A and other associated components.

DRIVE LINES

Check by substitution V12 and V13. Check T2, T4A, R79, C75, C74 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V12 and V13. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V11, V12 and V13. Check C69, C70 for open. Check L22, L21, C73, R2 and other associated components.

XMAS TREE EFFECT

Check by substitution V11, V12 and V13. Check T2 and T4 for internal arcing. Check L22, L21, C73, C66, R73, R72 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V10. Check waveform W6.

If Satisfactory	If Unsatisfactory
Check T3, T4B, R59, C3C, C3D and other associated components.	Check C58, C61, R55, R56, R5 and other associated components.

INSUFFICIENT SWEEP

Substitute V10. Check vertical size and vertical linearity controls for proper operation. Check R56, T3 and other associated components.

COMPRESSED AT BOTTOM

Substitute V10. Check R5, R56, C61 and other associated components.

COMPRESSED AT TOP

Substitute V10. Check C3D, R6, T3 and other associated components.

FOLDS

Substitute V10. Check C59, C60, C61, R57 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V6 and V7. Check C54, C55, R50, R47, R51, R52 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V10. Check vertical integrator network. Check C57, C58, R55 and other associated components.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Substitute V11. Check C65, C70, C69, L22, L21 and other associated components.

HORIZONTAL BENDING

Check by substitution V6, V7 and V11. Check components associated with V11.

VIDEO

LOSS OF VIDEO

Substitute V6. Check L14, L16, L17, R35, R34, C40, C42 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A8. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check R34, C40, C42, L12, L13 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check C40, C42 and other associated components.

SMEAR

Substitute V6. Check L12, L13, L14, R40, R42, R35 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V7, V8 and V9. Check stage V9 using audio signal generator. Apply audio signal across R18.

If Satisfactory	If Unsatisfactory
Check audio detector and audio IF stages for component failure or change of value.	Check C52, C53, R41, R42, R43, R44, T5, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments R7 and A-11 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

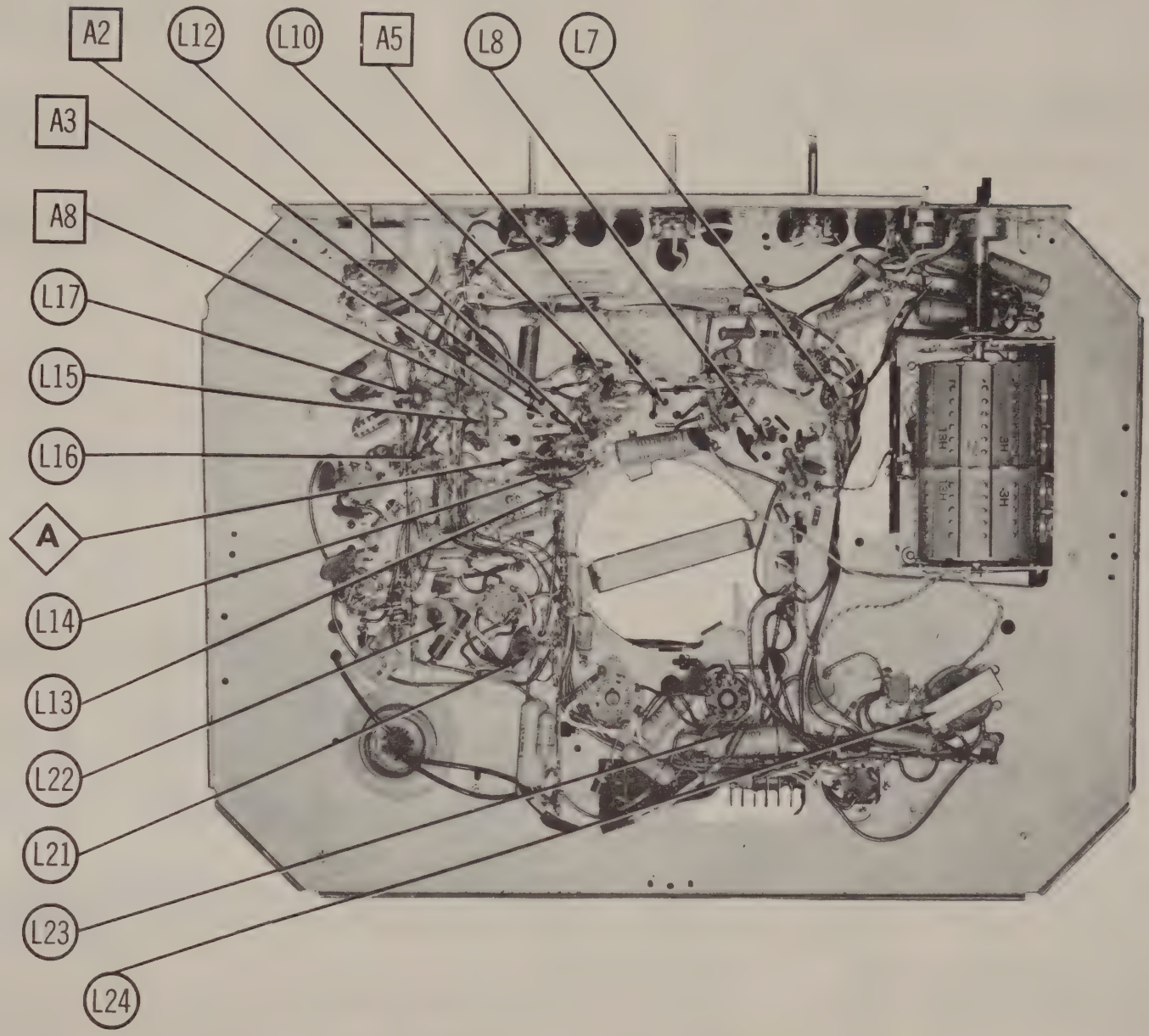
POWER

DEAD SET

If filaments fail to light, except V9, V12 and V13, check T1. If V9, V12 and V13 fail to light, check filament continuity and R84, since these tubes are connected in series. Check interlock assembly and switch on volume control. If filaments light, check M1, M2 and R83. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check M1, M2 and R83. Check B+ filter and decoupling network.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PROPERTY OF
F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND CAPACITO

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Osc.-Mixer	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.-Video Detector	6AN8	6AN8	9DA	
V6	Video Output-Sync Sep.	6AN8	6AN8	9DA	
V7	Sound IF Amp.-Sync Amp.	6AN8	6AN8	9DA	
V8	Audio Detector	6BN6	6BN6	7DF	
V9	Audio Output	25BK5	25BK5	9BQ	
V10	Vert. Mult.-Vert. Output	12BH7	12BH7	9A	
V11	Horiz. AFC-Horiz. Osc.	12AU7	12AU7	9A	
V12	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V13	Damper	25AX4GT	25AX4GT	4CG	
V14	HV Rectifier	1X2B	1X2B	9Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V15	21YP4A ①	21YP4A ①	21YP4A ①	21YP4A ②	21YP4A ①	12L	① Aluminized
	21YP4	21YP4	21YP4	21YP4	21YP4	12L	② Silver screen
	17HP4	17HP4 / 17RP4	17RP4 / 17HP4	17HP4 / 17RP4	17HP4 / 17RP4	12L	
				17HP4B ②		12L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C1	150	150	8C-22464			FP117	TM-150-150	T-050	
C2	150	150	8C-22463			FP117	TM-150-150	T-050	
C3A	■100	300	8C-23689				TM-4128	Q-290	
B	▲10	300						FM-4520	
C	▲25	450							
D	60	50							
C4	5	300	8C-24174			TC80	TD-8-350	FM-4504	Note 1
C5	470	500	8F3-121	DD-471	GP2K-471	MC245		K-1347	
C6	470	500	8F3-121	DD-471	GP2K-471	MC245		K-1347	
C7	3-8		31A-079	829-10					
C8	800		13M102Z02						
C9	.5-3		31A-056-1	829-3	3115-01-0R5	CT565A			
C10	1000		13L8Y102Z	DD-102	801-001	DC-521			
C11	120		13L8D121K	DD-121	811-121	UC-5312			
C12	120		13L8D121K	DD-121	811-121	UC-5312			
C13	800		13M102Z02						
C14	120		13L8D121K	DD-121	811-121	UC-5312			
C15	.5-3		31A-056-1	829-3	3115-01-0R5	CT565A			
C16	10		13L8C100A	TCZ-10	NP0K-100	ZT-541			
C17	5		13L8UA050C						
C18	1000		13L8Y102Z	DD-102	801-001	DC-521			
C19	10		13L8C100A	TCZ-10	NP0K-100	ZT-541			
C20	120		13L8D121K	DD-121	811-121	UC-5312			
C21	800		13M102Z02						
C22	800		13M102Z02						
C23	1000		8G-13201	D6-102	GP2L-102	UC-521		K-1210	
C24	2000		8G-19533	D6-202	GP2-333-202	UC-522		C-1220	
C25	1000		8G-13201	D6-102	GP2L-102	UC-521		K-1210	
C26	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C27	5		8G-12166	TCZ-4R7	NP0A-050	ZT-555		KR-1550	
C28	47		8G-19731	TCZ-47	NP0-338-470	ZT-5447		KR-1447	
C29	1000		8G-13201	DD-102	801-001	DC-521		K-1210	
C30	680		8G-21105	D6-681	GP2K-681	UC-5368		K-1368	
C31	5000		8G-13962	DD-502	811-005	DC-525		C-1250	Note 2
C32	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C33	5000		8G-13962	DD-503	811-005	DC-525		C-1250	
C34	5000		8G-13962	DD-503	811-005	DC-525		C-1250	
C35	1000		8G-13201	DD-102	801-001	DC-521		K-1210	
C36	5		8G-12166	TCZ-5	NP0A-050	ZT-555		KR-1550	
C37	5		8G-12166	TCZ-5	NP0A-050	ZT-555		KR-1550	
C38	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C39	.22	200	8K-23086			PT4022	IMP2-P22	3302022	
C40	.1	200	8K-23084	DF-104		PT401	IMP2-P1	330201	
C41	51		8G-23793						
C42	.1	400	8K-23095	DF-104		PT401	IMP4-P1	330401	
C43	3.3		8L-23551	TCZ-3R3	NP0A-3R3	ZT-5533			
C44	33		8G-19503	TCZ-33	NP0L-330	ZT-5433		KR-1433	
C45	30		14B-23772						Note 3
C46	10000		8G-20269	DD-103	811-01	DC-511			
C47	470	500	8F2-121	DD-471	811-471	MCB245		KR-1347	
C48	10000		8G-20269	DD-103	811-01	DC-511			
C49	10000		8G-20269	DD-103	811-01	DC-511			
C50	10		8G-11789	TCZ-10	NP0K-100	ZT-541		KR-1410	
C51	1000		8G-13201	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C52	.01	400	8K-23091	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C53	.01	600	8K-23102	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C54A	270				GP2K-271	UC-5327			Note 4
B	10000		†17A-24212	†PC-263	811-01	DC-511			Note 4
C	25				GP1K-250	UC-5425			Note 4
C55	.047	200	8K-23083	DF-503		PT4147	IMP2-S47	3302147	
C56A	2000					DC-522	IMP6-D2	C-1220	
B	5000		♦17A-22376	♦PC-100	♦1405-01	DC-525	IMP6-D5	C-1250	
C	5000					DC-525	IMP6-D5	C-1250	
C57	2000		8G-19522	D6-202	GP2-333-202	UC-522	IMP6-D2	C-1220	

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACE: TRUETONE PART No.	REPLACE: CENTRALAB PART No.	REPLACE: ERIE PART No.
C58	.1	200	8K-23084	DF-104	
C59	.033	600	8K-23816	DF-303	
C60	.1	200	8K-23084	DF-104	
C61	.1	400	8K-23095	DF-104	
C62	1000	2000	8G-23781	DD30-102	3KV-102
C63	.022	600	8K-23104	DF-203	817-02
C64	.022	200	8K-23082	DF-203	817-02
C65	82	500	8F3-112	D6-820	801-820
C66	82	500	8F3-112	D6-820	801-820
C67	82	500	8F3-112	D6-820	801-820
C68	.047	400	8K-23094	DF-503	
C69	.022	200	8K-23082	DF-203	817-02
C70	.047	200	8K-23083	DF-503	
C71	.47	200	8K-23087		
C72	270	500		TCZ-270	NP0-335-27
C73	.01	600			
C74	1000	500			811-01
C75	.001	600	8K-23099	D6-102	GP2L-102
C76	.047	200	8K-23094	DF-503	
C77A	5000		8G-23790	DD2-502	811-005
B	5000				811-005
C78	.1	600	8K-23106	DF-104	
C79	.15	200	8K-23085		
C80	220	3000	8G-23953	DD30-221	3KV-221
C81	47	3000	8G-24026	DD30-470	3KV-470
C82	47	2000	8G-23645	DD30-470	3KV-470
C83	.01	400	8K-23091	D6-103	GP2-333-10
C84	5000		8G-13962	DD-502	811-005

Note 1. Not used in Model 2D141lA.
Note 2. Some versions use 1000MMF in this application (par
Note 3. Capacity of shielded lead.
Note 4. Model 2D141lA uses separate items ; C54A is 220MM
Note 5. Some versions use 220MMF in this application (part
Note 6. Not used in some versions.
Note 7. Some versions use 330MMF in this application (part
Note 8. Some versions use .0068MFD in this application (pa
Note 9. Some versions use 470MMF in this application (par
† Items C54A, C54B, C54C, R46A and R46B are combined
♦ Items C56A, C56B, C56C, R53A, R53B and R53C are com

CONT

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT: TRUETONE PART No.	REPLACEMENT: IRC PART No.	REPLACEMENT: CLAROST PART N
R1A	1000Ω	½	B10A-23714	QJ-616	RTV-486
B	1Meg	½			
C	Switch				
R2A	50KΩ	½	B10B-24260	Q11-123	A47-50K-
B	Shaft		Not Req.	Not Req.	FS-3
R3A	500KΩ	½	B10B-24161	Q11-133	A47-500K
B	Shaft		Not Req.	Not Req.	FS-3
R4A	100KΩ	½	B10B-24258	Q11-128	A47-100K-
B	Shaft		Not Req.	Not Req.	FS-3
R5A	3Meg	½	B10B-23696	Q11-140	A47-3Meg
B	Shaft		Not Req.	RQ	FKS-1/4
R6A	6000Ω	½	B10B-23407	Q11-114	A47-5000
R	with 1000Ω stop				
B	Shaft		Not Req.	RQ	FKS-1/4
R7	750Ω	1	A10D-23857		39-750
R8A	250KΩ	½	10B-23658	Q11-130	
B	Shaft		Not Req.	RQ	

† Universal Replacement (Mallory exact duplicate part #UE65S)
Note 1. Some versions use an alternate control part #10B-24160
Note 2. Some versions use an alternate control part #10B-2425
Note 3. Some versions use an alternate control part #10B-24162
Note 4. Used in Model 2D141lA only.
Note 5. Connect a 1000Ω resistor in series with the right hand
to the same terminal of the original control (control viewed fro

RESIS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R9	220KΩ	½	9B1-27	BTS-220K	
R10	220KΩ	½	9B1-27	BTS-220K	
R11	15KΩ	½		BTS-15K	
R12	47KΩ	½		BTS-47K	
R13	2200Ω	½		BTS-2200	
R14	1000Ω	½		BTS-1000	
R15	220KΩ	½		BTS-220K	
R16	4700Ω	½		BTS-4700	
R17	15KΩ	½		BTS-15K	
R18	10KΩ	½		BTS-10K	
R19	15KΩ	½		BTS-15K	
R20	12KΩ	½	9B1-75	BTS-12K	
R21	1000Ω	½	9B1-62	BTS-1000	
R22	47Ω	½	9B1-46	BTS-47	
R23	1000Ω	½	9B1-62	BTS-1000	
R24	18KΩ	½	9B1-77	BTS-18K	
R25	1000Ω	½	9B1-62	BTS-1000	
R26	62Ω 5%	½	9B1-130	BTS-62 5%	
R27	1000Ω	½	9B1-62	BTS-1000	
R28	82Ω	½	9B1-49	BTS-82	
R29	33KΩ	½	9B1-80	BTS-33K	
R30	1000Ω	½	9B1-62	BTS-1000	
R31	1Meg	½	9B1-98	BTS-1Meg	
R32	4700Ω	½	9B1-70	BTS-4700	

PROPERTY OF
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3014 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BC8	6BC8	7BD	
V2	Osc.-Mixer	6J8	6J8	7BF	
V3	1st. Video IF Amp.	6CB8	6CB8	7CM	
V4	2nd. Video IF Amp.	6CB8	6CB8	7CM	
V5	3rd. Video IF Amp-Video Detector	6AN8	6AN8	9DA	
V6	Video Output-Sync Sep.	6AN8	6AN8	9DA	
V7	Sound IF Amp.-Sync Amp.	6AN8	6AN8	9DA	
V8	Audio Detector	6BN6	6BN6	7DF	
V9	Audio Output	35B5	35B5	9BQ	
V10	Vert. Mult.-Vert. Output	12BH7	12BH7	9A	
V11	Horiz. AFC-Horiz. Osc.	12AU7	12AU7	9A	
V12	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V13	Damper	25AX4GT	25AX4GT	4CG	
V14	HV Rectifier	1X2B	1X2B	8Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V16	21YP4A ① 21YP4 17BP4	21YP4A ① 21YP4 17BP4 / 17RP4	21YP4A ① 21YP4 17BP4 / 17RP4	21YP4A ③ 21YP4 17BP4 / 17RP4 17BP4B ②	21YP4A ① 21YP4 17BP4 / 17RP4	12L 12L 12L 12L	① Aluminized ② Silver screen

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C1	150	150	8C-23464			FP1JT	TM-150-150	T-050	
C2	150	150	8C-23465			FP1JT	TM-150-150	T-050	
C3A	⌀100	300	8C-23569				TM-4128	C-Q-390 / FM-4520	
B	10	300							
C	⌀30	450							
D	60	50							
C4	5	300	8C-24174			TC9G	TD-8-350	FM-4504	Note 1
C5	470	500	8F3-121	DD-471	GP2K-471	MC245		K-1347	
C6	470	500	8F3-121	DD-471	GP2K-471	MC245		K-1347	
C7	5-8		31A-079	33B-50					
C8	880		13MG02G02						
C9	5-8		31A-056-1	33B-3	31B-01-GR5	CT65A			
C10	1600		13LF1G02	DD-102	801-001	DC-521			
C11	120		13LD1D1K	DD-121	811-121	UC-5312			
C13	120		13LD1D1K	DD-121	811-121	UC-5312			
C13	800		13MG02G02						
C14	120		13LD1D1K	DD-121	811-121	UC-5312			
C15	5-8		31A-056-1	33B-3	31B-01-GR5	CT65A			
C16	10		13L8C10GA	TC2-10	NP0K-100	Z7-541			
C17	5		13L81A05GC						
C18	1000		13L67G02	DD-102	801-001	DC-521			
C18	10		13L8C10GA	TC2-10	NP0K-100	Z7-541			
C19	120		13LD1D1K	DD-121	811-121	UC-5312			
C20	1000		13MI02Z02						
C21	800		13MG02G02						
C22	800		13MG02G02						
C23	1000		8G-13201	D6-102	GP2L-102	UC-521		K-1210	
C24	2000		8G-18533	D6-202	GP2-333-202	UC-523		C-1232	
C25	1000		8G-13201	D6-102	GP2L-102	UC-521		K-1210	
C26	5000		8G-13962	DD-502	811-005	DC-525		C-1252	
C27	5		8G-13166	TC2-4R7	NP0A-050	Z7-555		KR-1550	
C28	47		8G-18731	TC2-47	NPO-338-470	Z7-5447		KR-1447	
C29	1000		8G-13201	DD-102	801-001	DC-521		K-1210	
C30	680		8G-13163	DD-681	GP2K-681	UC-5268		C-1250	
C31	5000		8G-13962	DD-502	811-005	DC-525		C-1250	Note 2
C32	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C33	5000		8G-13962	DD-502	811-005	DC-525		C-1252	
C34	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C35	1000		8G-13201	DD-102	801-001	DC-521		K-1210	
C36	5		8G-13166	TC2-5	NP0A-050	Z7-555		KR-1550	
C37	5		8G-13166	TC2-5	NP0A-050	Z7-555		KR-1550	
C38	5000		8G-13962	DD-502	811-005	DC-525		C-1250	
C39	.22	200	8K-23086			PT4022	IMP2-P22	3302022	
C40	.1	200	8K-23084	DF-104		PT401	IMP2-P1	330201	
C41	51		8Q-23725						
C42	.1	400	8K-23096	DF-104		PT401	IMP4-P1	330401	
C43	3.3		8L-23351	TC2-3R3	NP0A-3R2	Z7-5533			
C44	33		8Q-19503	TC2-33	NP0L-330	Z7-5433		KR-1433	
C45	30		14B-23772						Note 3
C46	10000		8Q-20269	DD-103	811-01	DC-511			
C47	470	500	8F3-121	DD-471	811-471	MC8245		KR-1347	
C48	10000		8Q-20269	DD-103	811-01	DC-511			
C49	10000		8Q-20269	DD-103	811-01	DC-511			
C50	10		8Q-11769	TC2-10	NP0K-100	Z7-541		KR-1410	
C51	1000		8G-13201	DD-102	801-001	DC-521	IMP6-D1	K-1210	
C52	.01	400	8K-23091	D6-103	GP2-333-103	PT411	IMP4-S1	330411	
C53	.01	600	8K-23102	D6-103	GP2-333-103	PT611	IMP6-S1	330611	
C54A	370		†17A-24312	†PC-263	GP2K-271 611-01	DC-511 CC-5425			Note 4 Note 4
B	10000				GP5K-250	PT4167	IMP2-S47	3302147	Note 4
C	25								
C55	.047	200	8K-23083	DF-503		PT4167	IMP2-S47	3302147	
C56A	3000					DC-523	IMP6-D2	C-1230	
B	5000		◆17A-23276	◆PC-100	◆1408-01	DC-525	IMP6-D5	C-1250	
C	5000					DC-525	IMP6-D5	C-1250	
C57	3000		8G-19623	D6-302	GP2-333-302	UC-523	IMP6-D2	C-1230	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: TRUETONE PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	NOTES
C58	.1	200	8K-23084	DF-104		PT401	IMP2-P1	330201	
C59	.033	600	8K-23816	DF-303		PT6133	IMP6-S3	3306133	
C60	.1	200	8K-23084	DF-104		PT401	IMP2-P1	330201	
C61	.1	400	8K-23098	DF-104		PT401	IMP4-P1	330401	
C62	1000	3000	8C-23781	DD30-102	34V-102	DC3G21		C-3220	
C63	.022	600	8K-23094	DF-223	817-03	PT6123	IMP6-S23	3306122	
C64	.022	300	8K-23083	DF-303	817-03	PT4123	IMP4-S23	3304123	
C65	82	500	8F3-123	D6-820	801-820			KR-1482	
C66	82	500	8F3-123	D6-820	801-820			KR-1482	
C67	82	500	8F3-123	D6-820	801-820			KR-1482	Note 5
C68	.047	400	8K-23096	DF-503		PT4147	IMP4-S47	3304147	
C69	.022	300	8K-23083	DF-303	817-03	PT4122	IMP4-S22	3304122	
C70	.047	300	8K-23083	DF-503		PT4147	IMP3-S47	3303147	
C71	.47	200	8K-23087			PT4047	IMP2-P47	3302047	
C72	270	500			TC2-270	NP0-338-271	MCE341	KR-1327	Note 7
C73	.01	500							Note 8
C74	1000	500				SIL-01	MCB355	KR-1210	Note 9
C75	.001	500	8K-23099	D6-102	GP2L-102	PT501	IMP6-D1	330501	
C76	.047	200	8K-23094	DF-503		PT4147	IMP4-S47	3304147	
C77A	5000		8Q-23790	DD8-502	(SIL-005 (SIL-005	DC-525		C-1250	
B	5000					DC-525		C-1250	
C78	.1	600	8K-23106	DF-104		PT601	IMP6-P1	330601	
C79	.15	200	8K-23085			PT4015	IMP3-P15	3302015	
C80	520	3000	8C-23953	DD30-521	34V-521	DC30323		K-3323	
C81	47	3000	8C-24028	DD30-470	34V-470	DC30447		K-4447	Note 6
C82	47	2000	8C-23845	DD20-470	34X-470	DC30447		K-4447	
C83	.01	600	8K-23091	D6-103	GP2-333-103	PT611	IMP4-S1	330411	
C84	5000		8G-13963	DD-503	811-006	DC-525		C-1250	

Note 1. Not used in Model 2D141A.
Note 2. Some versions use 1000MMF in this application (part #8G-13301).
Note 3. Capacity of shielded lead.
Note 4. Model 2D141A uses separate items ; C54A is 220MMF, C54B is 5000MMF and C54C is not used.
Note 5. Some versions use 220MMF in this application (part #8F3-117).
Note 6. Not used in some versions.
Note 7. Some versions use 330MMF in this application (part #8F5-115).
Note 8. Some versions use .0068MFD in this application (part #8M-24067).
Note 9. Some versions use 470MMF in this application (part #8F5-120).
† Items C54A, C54B, C54C, R46A and R46B are combined in one unit.
◆ Items C56A, C56B, C56C, R53A, R53B and R53C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	B10A-23714	QJ-616	RTV-496	F1-4	UF13L) †	Contrast - Panel
B	1Meg	½				R3-52	UR16A) †	Volume - Rear
C	Switch					KB-1	UB-26)	Attach to R1B
R2A	56KΩ	½	B10B-24280	QU-133	A47-56K-S	B-51	U-52	Horiz. Hold - Note 1
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A
R3A	1MegΩ	½	B10B-24181	QU-133	A47-500K-S	B-59	U-60	Brightness - Note 2
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	100KΩ	½	B10B-24356	QU-128	A47-100K-S	B-40	U-41	Vert. Hold - Note 3
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R4A
R5A	1Meg	½	B10B-23696	QU-140	A47-1Meg-S	AB-54	SU-59	Vert. Size
B	Shaft		Not Req.	RQ	FXS-1/4	AK-1	Not Req.	Attach to R5A
R6A	8000Ω with 1000Ω stop	½	B10B-23407	QU-114	A47-5000-S	AB-10	SU-14	Vert. Linearity - Note 5
B	Shaft		Not Req.	RQ	FXS-1/4	AK-1	Not Req.	Attach to R6A
R7	750Ω	½	A10D-23857		39-750			Buzz wire-wound
R8A	250KΩ	½	10B-23868	QU-130				Course - horiz. hold - Note 4
B	Shaft		Not Req.	RQ				Attach to R8A

† Universal Replacement (Mallory exact duplicate part #UE6SS).
Note 1. Some versions use an alternate control part #10B-24280.
Note 2. Some versions use an alternate control part #10B-24259.
Note 3. Some versions use an alternate control part #10B-24162.
Note 4. Used in Model 2D141A only.
Note 5. Connect a 1000Ω resistor in series with the right hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).

RESISTORS

ITEM No.	RATING: OHMS	WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R9	220KΩ	½	9B1-27	BTS-220K	
R10	220KΩ	½	9B1-27	BTS-220K	
R11	15KΩ	½		BTS-15K	
R12	47KΩ	½		BTS-47K	
R13	2200Ω	½		BTS-2200	
R14	1000Ω	½		BTS-1000	
R15	2200Ω	½		BTS-2200K	
R16	4700Ω	½		BTS-4700	
R17	15KΩ	½		BTS-15K	
R18	10KΩ	½		BTS-10K	
R19	15KΩ	½		BTS-15K	
R20	12KΩ	½	9B1-75	BTS-12K	
R21	1000Ω	½	9B1-62	BTS-1000	
R22	47Ω	½	9B1-66	BTS-47	
R23	1000Ω	½	9B1-62	BTS-1000	
R24	18KΩ	½	9B1-77	BTS-18K	
R25	1000Ω	½	9B1-62	BTS-1000	
R26	9Ω‡	½	9B1-130	BTS-9 5%	
R27	1000Ω	½	9B1-62	BTS-1000	
R28	82Ω	½	9B1-49	BTS-82	
R29	330Ω	½	9B1-80	BTS-330K	
R30	1000Ω	½	9B1-62	BTS-1000	
R31	1Meg	½	9B1-98	BTS-1Meg	
R32	4700Ω	½	9B1-70	BTS-4700	

ITEM No.	RATING: OHMS	WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R33	1Meg	½	9B1-98	BTS-1Meg	
R34	47Ω	½	9B1-46	BTS-47	
R35	5600Ω	2	9B4-71	BTB-5600	
R36	82KΩ	½		BTS-82K	Note 1
R37	1000Ω	½	9B1-62	BTS-1000	Note 2
R38	100KΩ	½	9B1-86	BTS-100K	
R39	47Ω	½	9B1-46	BTS-47	Note 10
R40	33KΩ	½	9B1-80	BTS-33K	
R41	18KΩ	2	9B4-77	BTB-18K	
R42	680Ω	½	9B1-60	BTS-680	
R43	220KΩ	½	9B1-90	BTS-220K	
R44	150Ω	½	9B2-52	BTA-150	
R45	12KΩ	½		BTS-12K	Note 3
R46A	220KΩ	½	† 17A-24312	BTS-220K	Note 4
B	2.2Meg	½		BTS-2.2Meg	
R47	560KΩ	½	9B1-95	BTS-560	
R48	100KΩ	½	9B1-86	BTS-100K	
R49	22KΩ	½	9B1-78	BTS-22K	
R50	1Meg	½	9B1-98	BTS-1Meg	
R51	470Ω	1	9B2-70	BTA-4700	
R52	1000Ω	½	9B1-62	BTS-1000	
R53A	22KΩ	½	◆17A-23276	BTS-22K	
B	820Ω	½		BTS-8200	
C	8200Ω	½		BTS-8200	

RESISTORS (cont)

ITEM No.	RATING: OHMS	WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R54	47KΩ 5%	½	9B1-62	BTS-47K 5%	
R55	82KΩ	½	9B1-85	BTA-82K	
R56	3.3Meg	½	9B1-104	BTS-3.3Meg	Note 5
R57	4700Ω	½	9B1-70	BTS-4700	
R58	2.2Meg	½	9B1-102	BTS-2.2Meg	
R59	2300Ω	5	9C12-1105	PW7-3300	
R60	100KΩ	½	9B1-86	BTS-100K	
R61	22KΩ	½	9B1-78	BTS-22K	
R62	560Ω	½	9B1-59	BTS-560	
R63	560Ω	2		KB-1482	
R64	330KΩ	½	9B1-82	BTS-330K	
R65	68KΩ	½		BTS-68K	Note 6
R66	820KΩ	½	9B1-97	BTS-820K	
R67	220KΩ	½		BTS-220K	Note 7
R68	39000 5%	½		BTS-3900 5%	Note 8
R69	39KΩ	½		BTS-39K	Note 1
R70	18KΩ	½		BTS-18K	Note 9

ITEM No.	RATING: OHMS	WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R71	4700Ω	½	9B1-17	BTS-4700	Note 10
R72	68KΩ	½		BTS-68K	Note 2
R73	82KΩ	½		BTS-82K	Note 11
R74	100KΩ	½		BTS-100K	Note 11
R75	68KΩ	½		BTS-68K	Note 12
R76	47KΩ	½	9B2-82	BTA-47K	
R77	470KΩ	½	9B1-94	BTS-470K	
R78	120Ω	½		BTS-1200	
R79	8200Ω	2	9B4-73	BTB-8200	
R80	11.5Ω	5	9C1-1065		
R81	25000Ω	5	9C-24033	PW7-2500	
R82	27000Ω	3	9C14-1084		
R83	6Ω	5	40M-23018		
R84	133Ω	15	9C-23872		
R85	220KΩ	½	9B1-27	BTS-220K	
R86	470KΩ	½	9B1-39	BTS-470K	
R87	330KΩ	½	9B1-82	BTS-330K	

Note 1. Model 2D141A uses a 100KΩ resistor in this application.
Note 2. Not used in some versions.
Note 3. Model 2D141A uses a 10KΩ resistor in this application.
Note 4. Chassis 2D141A uses 470KΩ resistor in this application.
Note 5. Chassis 2D141A uses a 2.2Meg resistor in this application.
Note 6. Chassis 2D141A uses a 47KΩ resistor in this application.
Note 7. Chassis 2D141A uses a 100KΩ resistor in this application, other versions use a 330KΩ resistor in this application.
Note 8. Chassis 2D141A uses 39000Ω resistor in this application.
Note 9. Chassis 2D141A uses a 33KΩ resistor in this application.
Note 10. Not used in chassis 2D141A.
Note 11. Chassis 2D141A uses a 150KΩ resistor in this application.
Note 12. Chassis 2D141A uses a 82000Ω resistor in this application.
† Items R46A, R46B, C54A, C54B and C54C are combined in one unit.
◆ Items R53A, R53B, R53C, C56A, C56B, and C56C are combined in one unit.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA: TRUETONE PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	UTVAC	13.6VCT		12D-23699	P5905Q ②	P-2959			35F67	
	① 3A	② 2.35A								

① Drill new mounting hole.
② Series two 6.3V windings for 12.6VCT.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	Halldorson PART No.	Merit PART No.	RCA PART No.	Ram TYPE No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Horiz. Output Trans.	12E-23939			X12E			FLY-80	
T3	Vert. Output Trans.	12E-23726	Z1804	A-3037	122T1			26S52	A-10ZX
T4A	Yoke-Horiz. (9M3G)	20I-24056 ①	DF601 ② ③	MDF-70 ② 3	V31A ② ③	A-8123	DY-8A ②	Y-5 ③ ④	Y-12 ② ⑤
B	Vert.(62M3G)				1 ② ③		2		

① Yoke assembly includes: Yoke, Truetone part #13M-23755, yoke positioning screw, Truetone part #32Z8-12186, and resistors R62 and R63.
② Use original rear cover and centering device.
③ Use original horizontal yoke damping network.
④ Use original yoke damping network.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: TRUETONE PART No.	Halldorson PART No	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T5	7KΩ	3.6Ω	12C-23704	Z1113	A-2996	A-3878	36H48	S-7X	

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP	REPLACEMENT DATA: TRUETONE PART No	QUAM PART No	NOTES
SP1	7"	PM	3.6Ω	12A-19927	8A21	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	SEC.	REPLACEMENT DATA: TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0Ω CT	0Ω	31M-012-3				Channel 2
B	Ant. Coil	0Ω CT	0Ω	31M-012-4				Channel 3
C	Ant. Coil	0Ω CT	0Ω	31M-012-4				Channel 4
D	Ant. Coil	0Ω CT	0Ω	31M-012-5				Channel 5
E	Ant. Coil	0Ω CT	0Ω	31M-012-6				Channel 6
F	Ant. Coil	0Ω CT	0Ω	31M-012-7				Channel 7
G	Ant. Coil	0Ω CT	0Ω	31M-012-8				Channel 8
H	Ant. Coil	0Ω CT	0Ω	31M-012-9				Channel 9
I	Ant. Coil	0Ω CT	0Ω	31M-012-10				Channel 10
J	Ant. Coil	0Ω CT	0Ω	31M-012-11				Channel 11
K	Ant. Coil	0Ω CT	0Ω	31M-012-12				Channel 12
L	Ant. Coil	0Ω CT	0Ω	31M-012-13				Channel 13
L2	Fil. Choke	0Ω		34A-546				
L3A	R.F. Mixer Grid & Osc. Coils	0Ω		31M-113-2				Channel 2
B	R.F. Mixer Grid & Osc. Coils	0Ω		31M-113-3				Channel 3
C	R.F. Mixer Grid & Osc. Coils	0Ω		31M-113-4				Channel 4

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
D	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-5				Channel 5
E	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-6				Channel 6
F	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-7				Channel 7
G	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-8				Channel 8
H	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-9				Channel 9
I	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-10				Channel 10
J	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-11				Channel 11
K	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-12				Channel 12
L	RF, Mixer Grid & Osc. Coils	0Ω		31M-112-13				Channel 13
L4	Fil. Choke	0Ω		34A-575				
L5	RF Coil	0Ω		31B-638-1				
L6	1st. Video IF	.9Ω		31B-257-8				
L7	RF Coil	1.8Ω		16A-18676	19-1002		4606	2.2 Microhenries IRC part #CLA
L8	2nd. Video IF	.2Ω		201-23829	17-1004 *	TV-103 *	6189 ■	
L9	3rd. Video IF	.2Ω		201-24043				Includes resistors and capacitors
L10	RF Choke	2.5Ω		201-20265	19-3036	TV-180	6176	35.2 Microhenries
L11	4th. Video IF	.2Ω	.2Ω	13B-23887				
L12	Series Peaking Coil	3.5Ω		16A-22923	19-6022		6152	22 Microhenries
L13	Series Peaking Coil	3.5Ω		16A-22923	19-6022		6152	22 Microhenries
L14	Shunt Peaking Coil	23Ω		16A-19365	19-4400	TV-190	4648	410 Microhenries
L15A	4.5MC Trap	1.9Ω		201-23729				
B	1st. Sound IF	2.9Ω						
L16	Series Peaking Coil	8.3Ω		16A-21391	19-3300		6155	305 Microhenries
L17	Shunt Peaking Coil	7.5Ω		16A-20970	19-3250	TV-185	6181	270 Microhenries
L18	Series Peaking Coil	2.5Ω		16A-24090	19-1005		4612	11 Microhenries
L19	2nd. Sound IF	.3Ω	.3Ω	201-23873				
L20	Quadrature Coil	5Ω		201-23727	20-1005	TV-151	1480	
L21	Horiz. Osc.	22Ω	55Ω	13M-24086			6212	
L22	Horiz. Phase	38Ω		13M-24085	20-1026 ▲	MWC-1 ▲	6314 ▲	
L23	RF Choke	1.5Ω		16A-21701	19-1005		4612	8 Microhenries

* Parallel with 5MMF capacitor.
■ Parallel with 5MMF capacitor and enlarge mounting hole.
▲ Parallel with .01MFD capacitor.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L24	.238A	39.5Ω	.64 HY	16A-23889	C5041	C-2996 ①	C-2328 ①	26C44 ①	C-23X ①

① Drill one new mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.238ADC	21J-23840	1236A	MR-300	6S300	6Q4	250A	
M2	.238ADC	21J-23840	1236A	MR-300	6S300	6Q4	250A	

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Tuner	21J-23684	VHF
M4	Centering Device	16M-23770	
M5	Ion Trap	16M-19706	
M6	Correction Magnet		
B4	Trimmer Cap.	8E-18508	Horiz. Drive (80-480MMF) used in some versions of Model 2D1411B
B4	Trimmer Cap.	8E-18511	Horiz. Drive (80-480MMF) Model 2D1411A
	Cabinet	24D-24388	Model 2D1411B
	Cabinet	24D-23994	Model 2D1411A
	Knob	5B-24393-A76	VHF Channel Selector - Model 2D1411B
	Knob	5B-23806-A76	VHF Channel Selector - Model 2D1411A
	Knob	5B-24136-A29	Fine tuning - Model 2D1411B
	Knob	5B-23807-A76	Fine tuning - Model 2D1411A
	Knob	5B-24138-A29	Picture - Model 2D1411B
	Knob	5B-23808-A76	Picture - Model 2D1411A
	Knob	5B-24392-A76	On-off-volume - Model 2D1411B
	Knob	5B-23809-A76	On-off-volume - Model 2D1411A
	Knob	5B-21240-A76	Control (3 used) - Model 2D1411B
	Knob	5B-24131-A76	Control (3 used) - Model 2D1411A

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TROUBLE SHOOTING AIDS (cont)

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V11, V12, V13 and V14. Check waveform W11.

If Satisfactory	If Unsatisfactory
Check T2, T4A, C78, C79, C80, C76, R79 and other associated components.	Check L22, L21, R70, R71, C68, C72, C75 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V12 and V13. Check M1 and M2. Check R83, R79, C75, C74 and other associated components.

BLOOMING

Check by substitution V12, V13 and V14. Check M1 and M2. Check R83, R79, C75, L22, L21 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5 and V6. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

KEYSTONE EFFECT

Check T4 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

PRODUCTION CHANGES

Truetone model 2D1411D is electrically identical to model 2D1411A, except for the following changes.

COMPONENT CHANGE

R73 is replaced by a 68KΩ resistor and an 82KΩ resistor wired in series. From the junction of these two resistors an 82MMF capacitor is added to ground.

NEW CONTROLS

The horizontal hold control (R2) is changed to part #10B-23694.

The brightness control (R3) is changed to part #10B-23695.

The vertical hold control (R4) is changed to part #10B-23693.

Listed below is the replacement data for these new controls.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R2A	50KΩ	½	10B-23694	Q11-123	A47-50K-S	AB-31	SU-35	Horiz. Hold
B	Shaft		Not Req.	TQ	RN-3	AK-19	Not Req.	Attach to R2A
R3A	500KΩ	½	10B-23695	Q11-133	A47-500K-S	AB-59	TA-55L	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	100KΩ	½	10B-23693	Q11-128	A47-100K-S	AB-40	U-41	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

FOR MODEL 2D141lB

To adjust the horizontal oscillator circuit remove the rear cover and supply power to the set. Set the horizontal hold control (R2) at the mid-range position of its range and adjust the horizontal oscillator coil (L21) until picture synchronizes horizontally.

FOR MODEL 2D141lA

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the horizontal hold control (R2) at the center of its range and adjust the coarse horizontal hold control (R8) until picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the buzz control (R7) located on top of the chassis for maximum sound and minimum buzz.

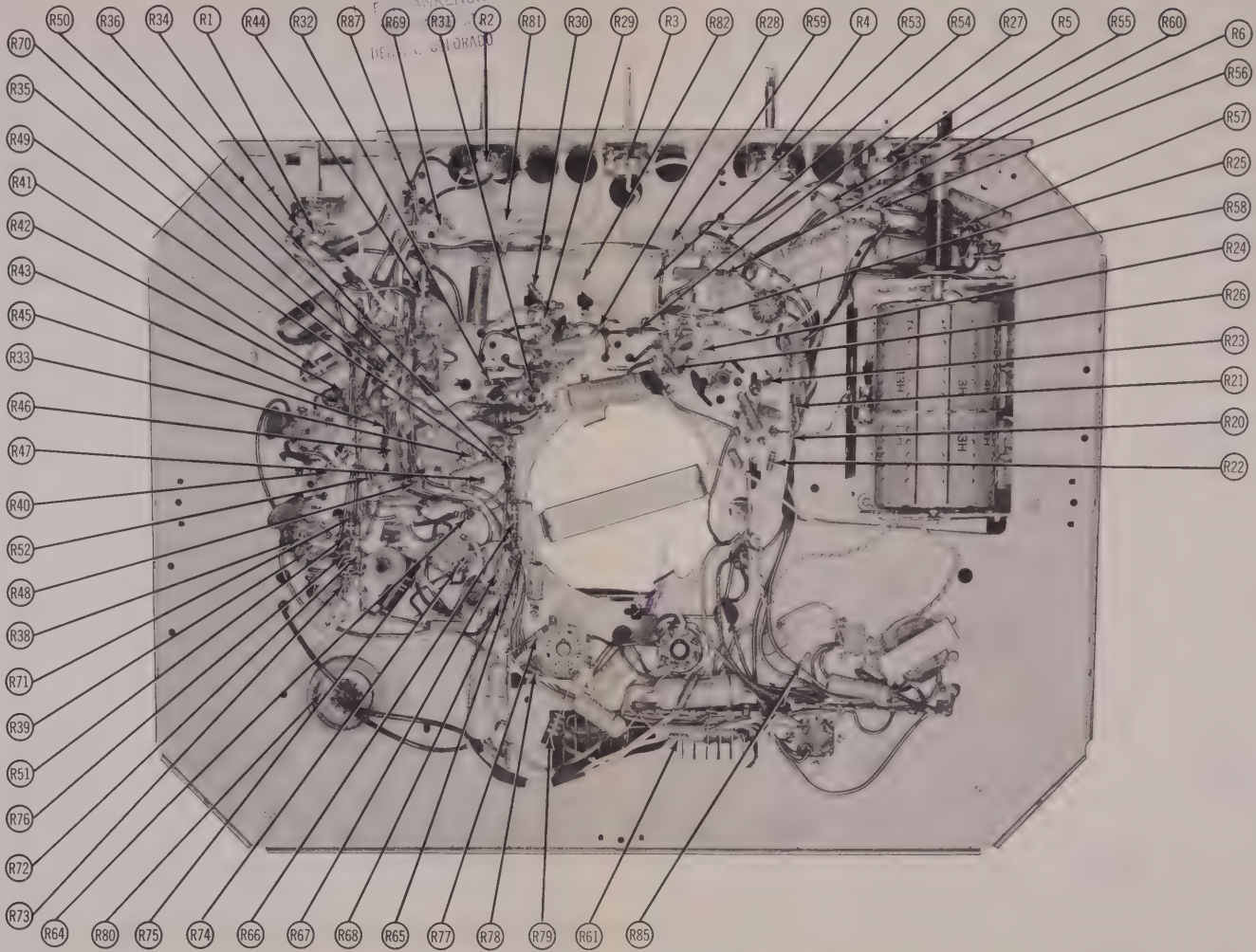
CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until picture is properly centered.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type control knobs from front panel of cabinet.
2. Remove 9 wood screws. Remove rear cover.
3. Remove 2 wood screws. Remove antenna and interlock bracket.
4. Disconnect speaker leads, picture tube socket, yoke plug and HV lead.
5. Remove 5 chassis bolts. Remove chassis.
6. Remove 2 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

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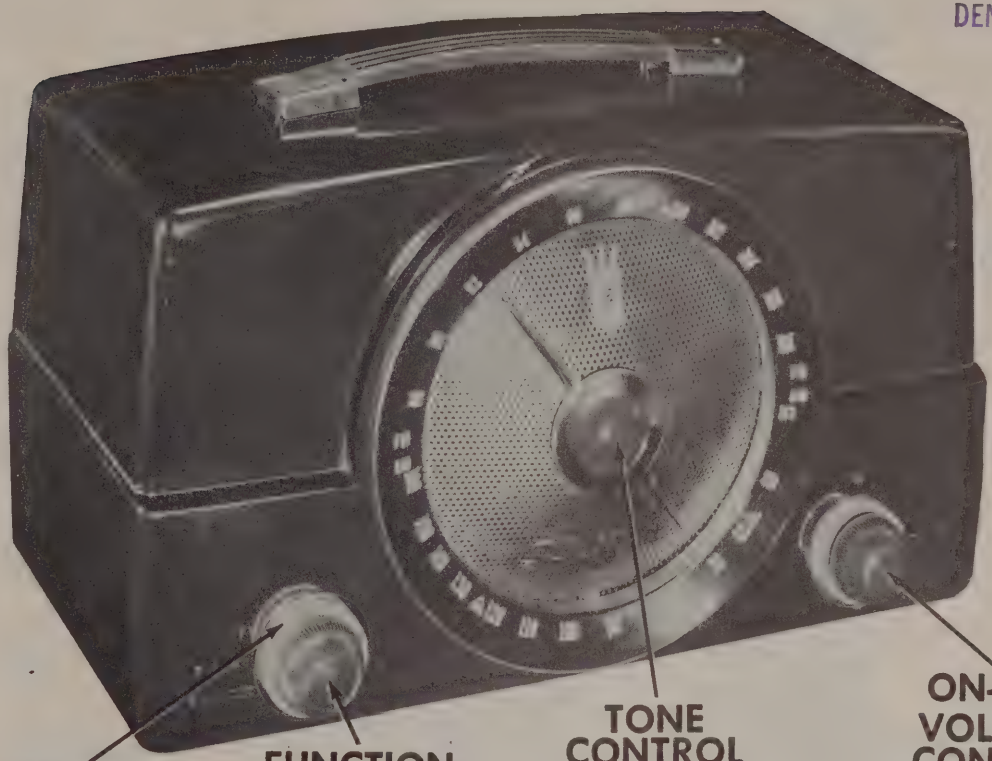
ZENITH MODELS
T825F, G, R (Ch. 8T01)



ZENITH MODELS
T825F, G, R (Ch. 8T01)

TRADE NAME	Zenith Models T825F, G, R (Ch. 8T01)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver		
TUBES (Eight)	Types 6BJ6 FM-AM RF Amp., 12AT7 FM-AM Mixer-Osc., 6AB4 FM AFC, 12BA6 1st FM-AM IF Amp., 12BA6 2nd FM-AM IF Amp., 12AV6 FM Limiter, 19T8 Discr. -AM Det-AVC-AF Amp., 35C5 Output		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.33 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	540KC - 1620KC	FM	88MC - 108MC

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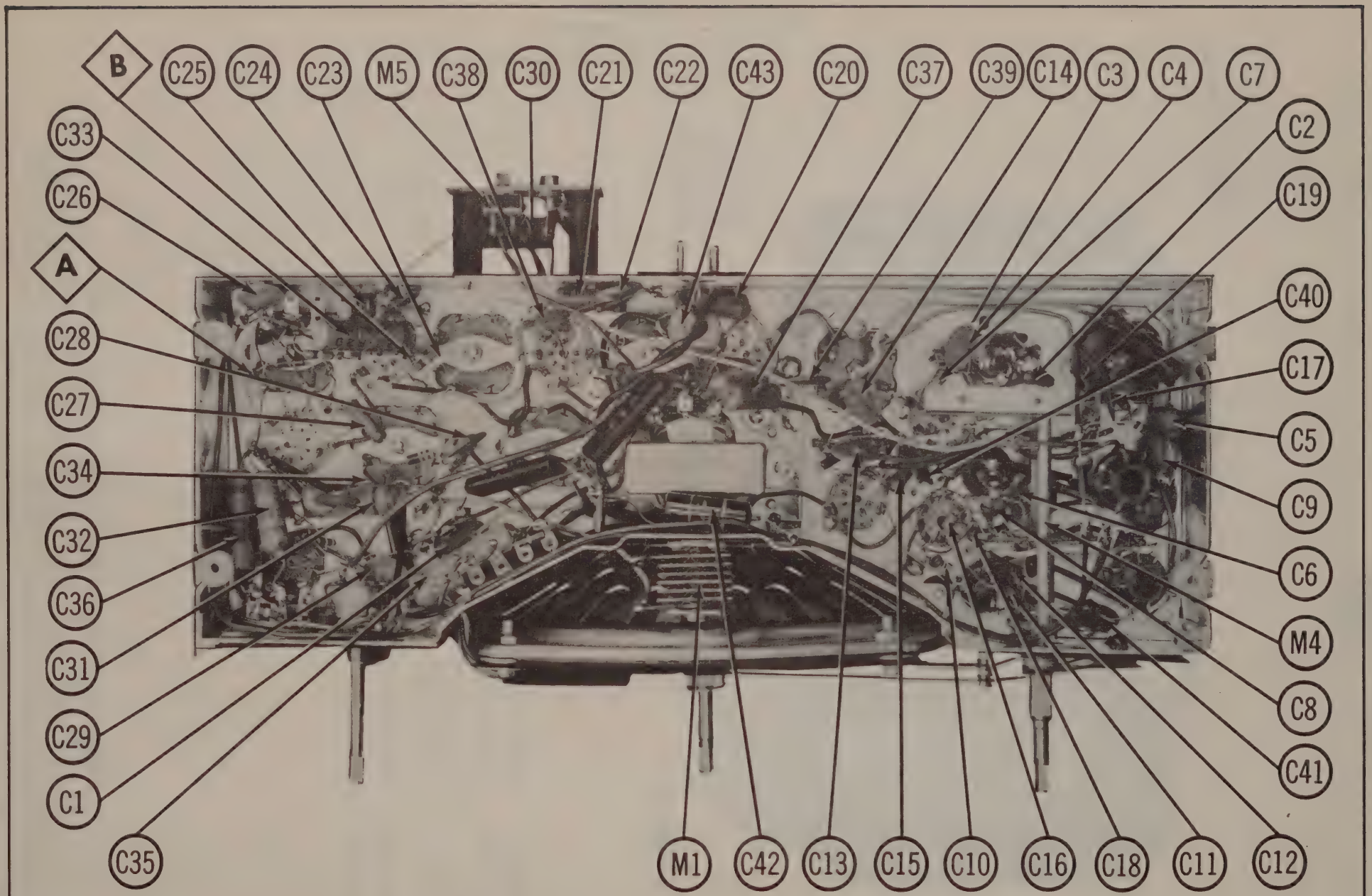
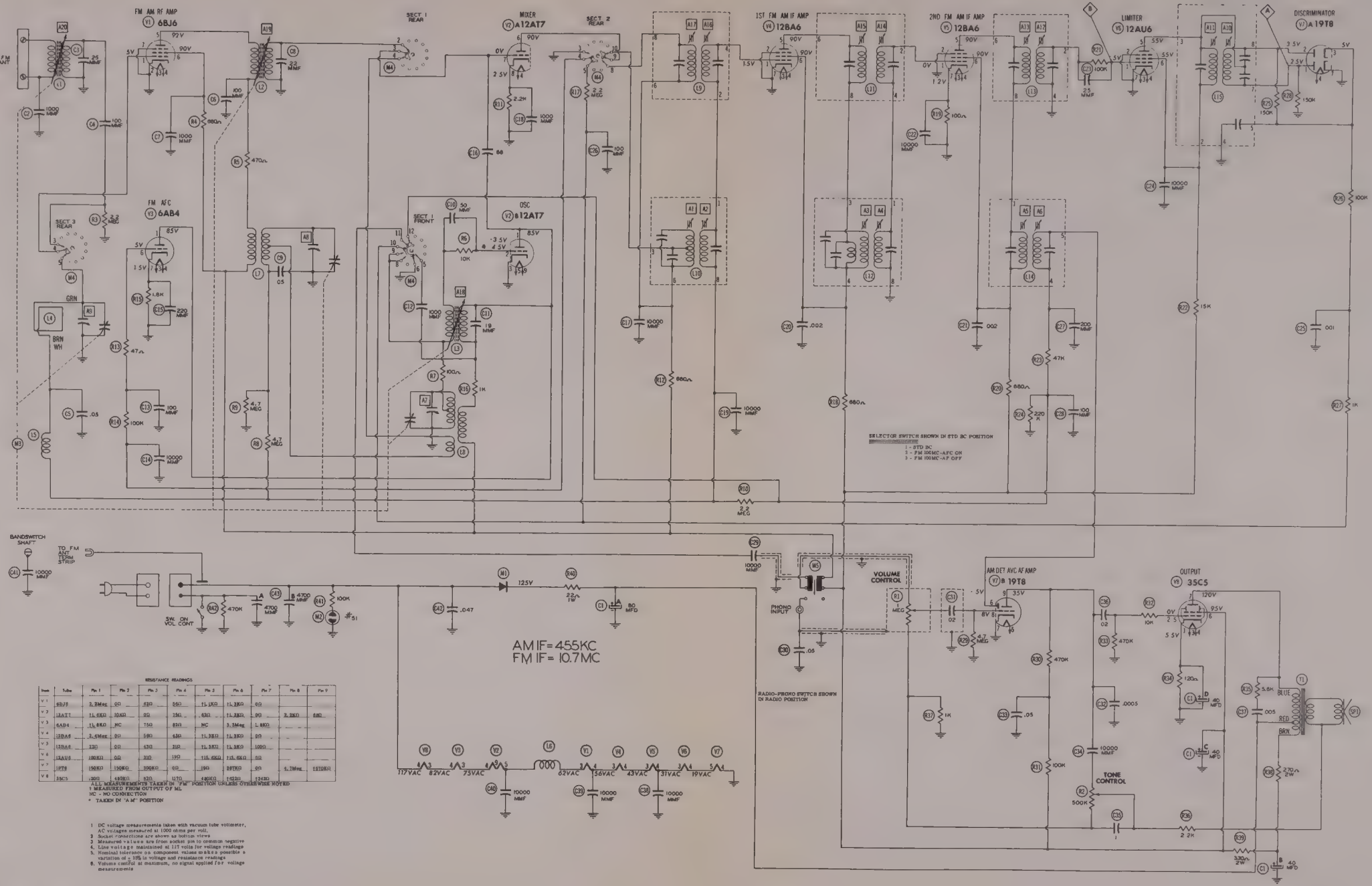


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	2.2Meg	0Ω	82Ω	86Ω	11.1KΩ	11.3KΩ	0Ω		
V2	12AT7	11.6KΩ	10KΩ	0Ω	156Ω	63Ω	11.3KΩ	0Ω	2.2KΩ	68Ω
V3	6AB4	11.8KΩ	NC	75Ω	82Ω	NC	3.3Meg	L 8KΩ		
V4	12BA6	3.4Meg	0Ω	59Ω	43Ω	11.3KΩ	11.3KΩ	0Ω		
V5	12BA6	120	0Ω	63Ω	31Ω	11.3KΩ	11.3KΩ	100Ω		
V6	12AU6	180KΩ	0Ω	31Ω	19Ω	115.6KΩ	115.6KΩ	0Ω		
V7	19T8	150KΩ	150KΩ	300KΩ	0Ω	19Ω	287KΩ	0Ω	5.1Meg	157KΩ
V8	35C5	300Ω	480KΩ	82Ω	117Ω	480KΩ	1.42Ω	134Ω		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE NOTED
† MEASURED FROM OUTPUT OF M1
NC - NO CONNECTION
* TAKEN IN "A.M." POSITION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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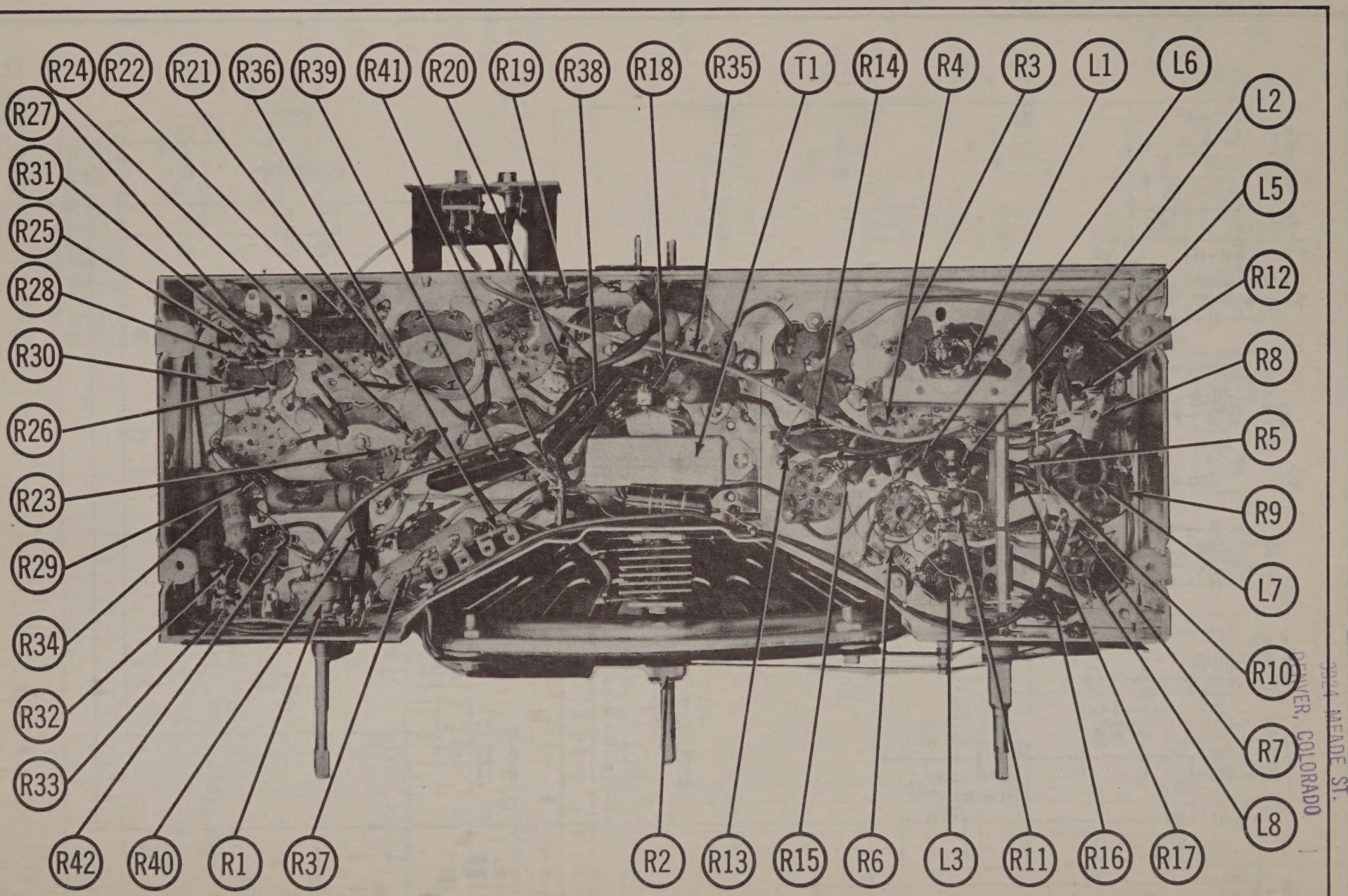

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
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DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	455KC (400∿ Mod)	BC	600KC	Across voice coil.	A1, A2, A3, A4, A5, A6	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	"	1600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A8, A9	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V6). Low side to chassis.	10.7MC (unmod)	FM	Point of non-interference.	DC probe thru 1Meg to point (A). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
5.	"	"	"	"	"	"	A11	Adjust for maximum deflection.
6.	"	High side to pin 1 (grid) of 12BA6 (V5). Low side to chassis.	"	"	"	DC probe thru 1Meg to point (B). Common to chassis.	A12, A13	"
7.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	"	A14, A15	"
8.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	"

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.05MFD	High side to pin 1 (grid) of 12AU6 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference.	Vert. amp. thru 1Meg to point (A). Low side to chassis.	A10, A11	Adjust A10 so that 10.7MC occurs at center of crossover lines similar to Fig. 1. Adjust A11 for maximum amplitude and straightness of crossover lines.
5.	"	High side to pin 1 (grid) of 12BA6 (V5). Low side to chassis.	"	"	"	Vert. amp. thru 1Meg to point (B). Low side to chassis.	A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
6.	"	High side to pin 1 (grid) of 12BA6 (V4). Low side to chassis.	"	"	"	"	A14, A15	"
7.	"	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	"	A16, A17	Adjust for curve of maximum amplitude and symmetry similar to Fig. 2. Repeat steps 5, 6 and 7. Proceed with step 9.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	270Ω carbon resistor	Across FM antenna terminals with 270Ω in each lead.	98MC	FM	98MC	DC probe thru 1Meg to point (B). Common to chassis.	A18, A19 A20	Adjust for maximum deflection.

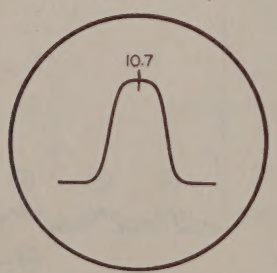


FIG. 1

FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

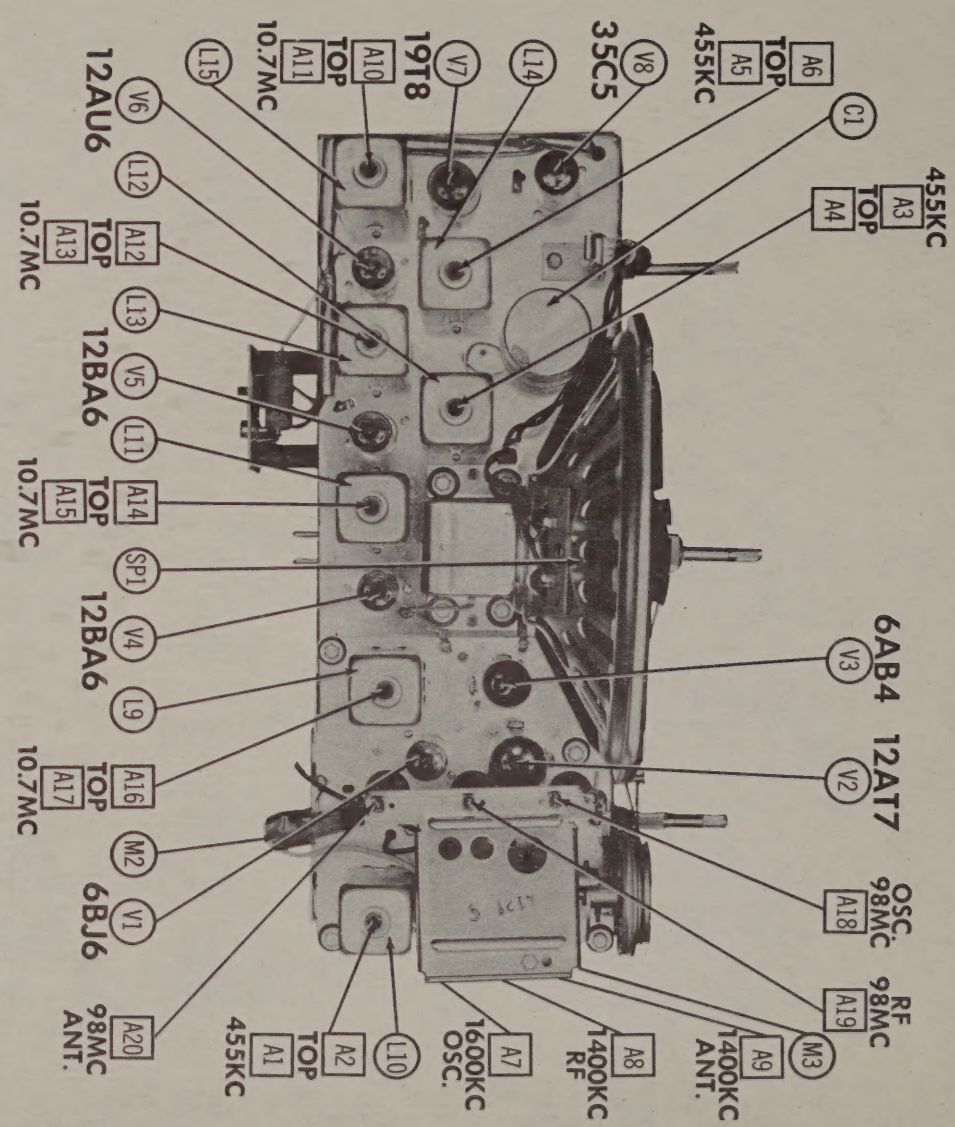
ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
V1	FM-AM RF Amp.	6BJ6	6BJ6	7CM	
V2	FM-AM Mixer-Osc.	12AT7	12AT7	9A	
V3	FM AFC	6AB4	6AB4	5CE	
V4	1st FM-AM IF Amp.	12BA6	12BA6	7BK	
V5	2nd FM-AM IF Amp.	12BA6	12BA6	7BK	
V6	FM Limiter	12AU6	12AU6	7BK	
V7	Discriminator-AM Det-AVC-AF Amp.	19T8	19T8	9E	
V8	Audio Output	35C5	35C5	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT	ZENITH PART No.	CENTRALAB PART No.	ERIE PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	
C1A	▰80	150	22-1661			FP411, 32	TM-4039	Q-120	
B	▲40	150					TD-25-25		
C	■40	150							
D	40	25							
C2	1000		22-1676	D6-102	GP2L-102	UC-521		K-1210	
C3	25		22-2060						
C4	100		22-5	DD-101	801-101	UC-531		K-1310	
C5	.05	200	22-829	DF-503		PT415	IMP2-S5	330215	
C6	100		22-5	DD-101	801-101	UC-531		K-1310	
C7	1000		22-1676	D6-102	GP2L-102	UC-521		K-1210	
C8	22		22-1506						
C9	.05	200	22-829	DF-503		PT415	IMP2-S5	330215	
C10	50		22-1367	TCA-47	N330L-470				
C11	19		22-2630						
C12	1000		22-1676	D6-102	GP2L-102	UC-521		K-1210	
C13	100		22-9	DD-101	801-101	UC-531		K-1310	
C14	10000		22-3	DD-103	811-01	DC511		C-06110	
C15	220		22-2321	D6-221	GP2K-221			KR-1322	
C16	.68		22-1766	TCZ-R68	NP0A-0R68				
C17	10000		22-3	DD-103	811-01	DC511			
C18	1000		22-1676	D6-102	GP2L-102	UC-521		K-1210	
C19	10000		22-3	DD-103	811-01	DC511			
C20	.002	600	22-1220	D6-202	GP2-333-202	PT622	IMP6-D2	330622	
C21	.002	600	22-1220	D6-202	GP2-333-202	PT622	IMP6-D2	330622	
C22	10000		22-3	DD-103	811-01	DC511		C-06110	
C23	25		22-1507	TCN-25	N750K-250	NT-5447			
C24	10000		22-3	DD-103	811-01	DC511			
C25	.001	200	22-1717	D6-102	GP2L-102	PT621	IMP6-D1	330621	
C26	100		22-5	DD-101	801-101	UC-531		K-1310	
C27	200		22-1668	D6-201	GP2K-201	UC-532		K-1320	
C28	100		22-5	DD-101	801-101	UC-531		K-1310	
C29	10000		22-3	DD-103	811-01	DC511	IMP4-S1		
C30	.05	200	22-829	DF-503		PT415	IMP2-S5	330215	
C31	.02	400	22-1683	D6-203	GP2-333-202	PT412	IMP4-S2	330412	
C32	.0005	600	22-854	D6-501	GP2K-501	MC245	IMP6-T5	330635	
C33	.05	200	22-829	DF-503		PT415	IMP2-S5	330215	
C34	10000		22-3	DD-103	811-01	DC511	IMP4-S5	C-06110	
C35	.1	200	22-2084	DF-104		PT401	IMP2-P1	330201	
C36	.02	600	22-830	DF-203	817-02	PT612	IMP6-S2	330612	
C37	.005	400	22-1702	D6-502	GP2-333-502	PT625	IMP6-D5	330425	
C38	10000		22-3	DD-103	811-01	DC511		C-06110	
C39	10000		22-3	DD-103	811-01	DC511		C-06110	
C40	10000		22-3	DD-103	811-01	DC511		C-06110	
C41	10000		22-3	DD-103	811-01	DC511		C-06110	
C42	.047	400	22-1775	DF-503		PT4147	IMP4-S47	3304147	
C43A	4700		22-2567	DD2-502	811-0047	DC525	IMP6-D47	3306247	
B	4700				811-0047	DC525	IMP6-D47	3306247	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	63-2822	Q13-137	A47-1Meg-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	Not Req.	US-26	Attach to R1A
R2	500KΩ	½	63-3276					Tone

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R3	2.2Meg	½	63-1926	BTS-2.2Meg	
R4	680Ω	½	63-1779	BTS-680	
R5	470Ω	½	63-1772	BTS-470	
R6	10KΩ	½	63-1828	BTS-10K	
R7	100Ω	½	63-1744	BTS-100	
R8	4.7Meg	½	63-1940	BTS-4.7Meg	
R9	4.7Meg	½	63-1940	BTS-4.7Meg	
R10	2.2Meg	½	63-1926	BTS-2.2Meg	
R11	2200Ω	½	63-1800	BTS-2200	
R12	680Ω	½	63-1779	BTS-680	
R13	47Ω	½	63-1730	BTS-47	
R14	100KΩ	½	63-1869	BTS-100K	
R15	1800Ω	½	63-1796	BTS-1800	
R16	1000Ω	½	63-1785	BTS-1000	
R17	2.2Meg	½	63-1926	BTS-2.2Meg	
R18	680Ω	½	63-1779	BTS-680	
R19	100Ω	½	63-1744	BTS-100	
R20	680Ω	½	63-1779	BTS-680	
R21	100KΩ	½	63-1870	BTS-100K	
R22	15KΩ	½	63-1835	BTS-15K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R23	47KΩ	½	63-1856	BTS-47K	
R24	220KΩ	½	63-1884	BTS-220K	
R25	150KΩ	½	63-1876	BTS-150K	
R26	100KΩ	½	63-1870	BTS-100K	
R27	1000Ω	½	63-1786	BTS-1000	
R28	150KΩ	½	63-1876	BTS-150K	
R29	4.7Meg	½	63-1940	BTS-4.7Meg	
R30	470KΩ	½	63-1898	BTS-470K	
R31	100KΩ	½	63-1870	BTS-100K	
R32	10KΩ	½	63-1828	BTS-10K	
R33	470KΩ	½	63-1898	BTS-470K	
R34	120Ω	½	63-1747	BTS-120	
R35	5600Ω	½	63-1817	BTS-5600	
R36	2200Ω	½	63-1799	BTS-2200	
R37	1000Ω	½	63-1785	BTS-1000	
R38	270Ω	2	63-1452		
R39	330Ω	2	63-1202	BTB-330	
R40	22Ω	1	63-1450		
R41	100KΩ	½	63-1870	BTS-100K	
R42	470KΩ	½	63-1898	BTS-470K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.3KΩ	3.3Ω	95-1315	Z1102 ①	A-3031 ①	A-3330 ①	24S50A ①		① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	7½"	PM	3.3Ω	49-608	8A31	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	0Ω	0Ω	S-14192			1474	
L2	FM RF Coil	0Ω	0Ω	S-15743				
L3	FM Osc. Coil	0Ω	0Ω	S-15691				
L4	Loop Ant.	1.4Ω						
L5	RF Coil	0Ω		20-337	19-1003	BC-357	4608	4.2 Microhenries
L6	Fil. Choke	.9Ω		S-13997	19-1005		4612	9.5 Microhenries
L7	AM RF Coil	2.6Ω	11Ω*	S-16344				*Tapped ② 3.3Ω
L8	Am Osc. Coil	1.2Ω	8.5Ω■	S-16345				■Tapped ② 3.5Ω -- Tertiary winding = 1.2Ω
L9	1st FM IF	.4Ω	.4Ω	95-1201	16-6665▲	FM-251▲	1451▲	
L10	1st AM IF	4.6Ω	16Ω	95-1248				
L11	2nd FM IF	.4Ω	.4Ω	95-1150	16-3487♦	FM-251▲	1451▲	
L12	2nd AM IF	.5Ω	17Ω	95-1249				
L13	3rd FM IF	.4Ω	.4Ω	95-1150	16-3487♦	FM-251▲	1451▲	
L14	3rd AM IF	17Ω	11Ω	95-1254	16-5742▲	BC-350▲	912-C4▲	
L15	Discriminator	.4Ω	.4Ω	95-1153	17-3484†	FM-250#	1452#	

▲ Drill new mounting holes and remove center spade bolt mounting support.
♦ Remove center spade bolt mounting support and use adaptor plate.
▲ Remove center spade bolt mounting support.
† Add filter cap externally, drill new mounting holes and remove center spade bolt mounting support.
# Add filter cap externally and remove center spade bolt mounting support.

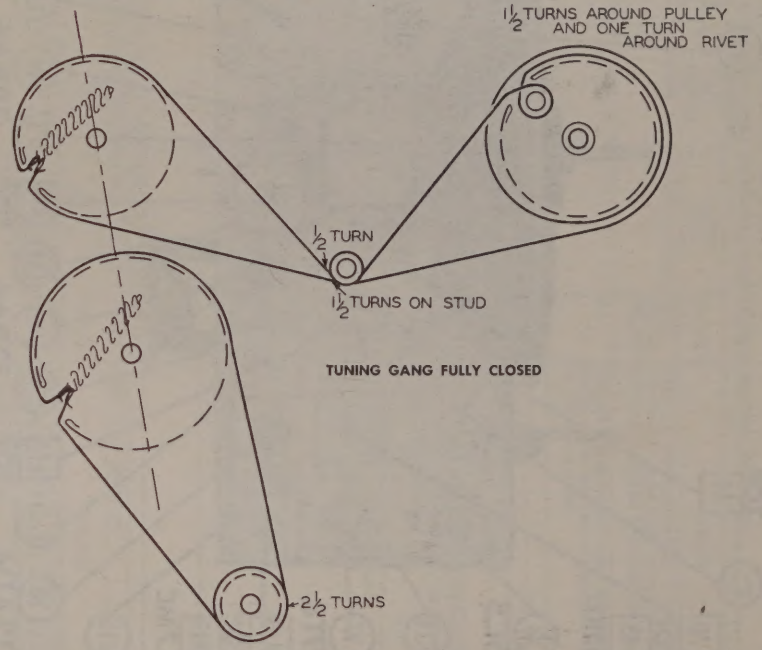
PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.092A	212-13	1005A	RS-100	6S100	5M1	100A	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M2	Pilot Light	100-105	Neon-#51
M3	Tuning Cap.	22-1677	3 Gang (24-410MMF; 16-213MMF;18-92MMF)
M4	Switch	85-560	AM-FM (Rotary - Wafer type)
M5	Switch	85-495	Phono-Radio (DPDT - Slide type)
	Cabinet	14-1744	Model T825R
	Cabinet	14-1745	Model T825G
	Cabinet	14-1746	Model T825F
	Knob	46-522	Dummy
	Knob	46-538	Tuning
	Knob	46-697	On-Off-Volume
	Knob	46-718	AM-FM Switch
	Knob	46-855	Tone
	Dial Scale	26-536	
	Dial Pointer	59-292	
	Handle	36-91	
	Jewel	171-11	Pilot Light



DIAL CORD STRINGING